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NATIONAL COUNCIL OF
EDUCATIONAL RESEARCH
AND TRAINING

ABBREVIATIONS

In the names of journals cited in references and bibliographies, prepositions and conjunctions have been generally avoided, and the following abbreviations used :

Abnorm.	Abnormal	*Med.*	Medical
Amer.	American	*Monog.*	Monograph(s)
App.	Applied	*Occup.*	Occupational
Br.	British	*Pers.*	Personality
Bull.	Bulletin	*Personn.*	Personnel
Canad.	Canadian	*Psychol.*	Psychology Psychological
Charac.	Character		
Clin.	Clinical	*Rep.*	Report(s)
Consult.	Consulting Consultation	*Res.*	Research
Edu.	Education	*Rev.*	Review
Educl.	Educational	*Sec.*	Secondary
Engg.	Engineering	*Soc.*	Social
Exp.	Experimental	*Sociol.*	Sociological
Guid.	Guidance	*Statist.*	Statistical
Ind.	Indian	*Stud.*	Studies
Measmt.	Measurement	*Univ.*	University

International Education Year 1970—
Development of
Educational Research

Unesco

We reproduce for readers Unesco's document on the development of educational research, a priority theme during the International Education Year 1970. This document, as Unesco's introduction states, "provides basic information and suggests directions for study, discussion and action; no attempt is made to analyse the subject exhaustively or to express the official view of Unesco".

EDITOR

When the General Conference of Unesco adopted a resolution on International Education Year, it set as one of the objectives of IEY the development of educational research. What does this imply both for, educational research and for education as a whole? We propose to examine briefly in the following paragraphs what educational research is, what some of the problems are, and what the average person interested in education can hope from educational research activities in the next few years. But first a warning: education research

is a relatively new and rapidly expanding field of work and as with any new domain of human effort, it is common to take one of two extreme positions: to deny the importance of research and neglect to give it adequate support; or to overstate the case and insist that research be carried out everywhere, as the panacea for all ills of education. We shall strive for a middle course and attempt to explain as realistically as possible what can be expected in and from the development of education research in the next ten years.

What is meant by educational research? It is, essentially, the process of applying scientific method in the study of education, with the familiar sequence of defining the problem, planning for the collection of data, gathering these data systematically and objectively, analysing them and finally drawing conclusions which are communicated to and can be verified by others. Educational research makes particular use of the methods developed in the fields of psychology and sociology but relatively recently, increasing use has been made of economic theory and methods for certain types of educational research studies.

I

Typical studies included in the programme of an educational research institution cover such fields as pupil learning and the passage of pupils through the school system; the curriculum; teaching and teachers; teaching and learning materials and equipment; the administration of education; preschool education; out-of-school education; education of adults; education of handicapped children and educational planning. The development of suitable tests of pupil learning (for example, achievement tests, intelligence tests, aptitude tests, etc.)

has often been the initial and principal activity of many educational research institutions. Such tests were initially elaborated in France early in this century in order to assist the Ministry of Education to select children who did not do sufficiently well in primary school and for whom special instruction was to be provided. The use of such tests has now spread widely, to industry and to the military services, but the initial impetus came from the "felt need" of educational administrators. Educational research activities have continued to revolve very much around the use of tests.

An area of research which is now becoming of increasingly greater importance is curriculum research. The validity and relevance of what is being taught has been questioned in many countries, and resources have been made available for large research projects evaluating different aspects of what is being taught in schools. Such studies often include examination of teaching methods, of teaching materials, of examination systems. All of the studies involve an amount of pupil testing.

A general nation-wide examination of what was taught in the schools and what the children were learning was carried out in Japan in order to evaluate effects of the school system introduced by the Americans after the Second World War. Thailand (through the Bangkok Institute of Child Study) undertook a major evaluation of the primary school curriculum in 1963. These were very large-scale research efforts calling for considerable resources both in men and money. The Swedish school reform has been accompanied over a period of some twenty years now by a series of studies of curriculum and of pupil achievement; and in many other countries both government financed and privately financed research studies of particular aspects of school curriculum have been carried out. As a result of educational research in the Soviet Union, new curricula have been prepared for all forms of primary and secondary schools, and the elementary phase of schooling was shortened three years ago. New curricula and new textbooks in Soviet schools now correspond more closely to the requests of scientific and technical progress. Soviet school reform being carried out today is based on broad educational research work by the Soviet Academy of Pedagogical Sciences.

However, as Professor Wiseman, Director of the National Founda-

tion for Educational Research in England and Wales, remarked in a recent article, there is a certain reluctance to pursue curriculum evaluation with the same enthusiasm as curriculum reform. A substantial number of educators, as well as the general public, have a strong dislike of educational tests and measurements, which are often seen as instruments of control and condemnation. The importance of their application to the validation of curriculum and teaching methods is not yet appreciated. A recent controversy in the United States of America around the "National Assessment Program" underlines Dr. Wiseman's point, where the American Association of School Administrators said: "We call attention to the fact that there are ways other than testing to assess education; and we reiterate our abhorrence of any program of national testing whose failure to allow for differences among regions or localities would make it inherently unfair". (It may be remarked that much of the opposition has been appeased by a full-scale public relations programme and work is proceeding, financed by a grant from Congress, as well as grants from various private foundations).

Endeavours to deal with teacher shortages have called forth a considerable amount of research into methods and techniques of teaching. Programmed instruction, which was a direct outcome of basic research on learning, has been extensively researched for educational purposes. In recent years there has been an increasing amount of research on teacher training, in particular with development of more refined observation methods (such as micro-teaching, for example). The International Conference on Public Education, at its XXIXth session, Geneva 1966, stressed the need for psycho-educational knowledge of the child as the starting point for any educational activity. According to the conclusions of this Conference, in order to attain efficiency to its fullest extent, educational research, like any other scientific research, must be carried through by means of the joint action by teachers, educational administrators, educationalists and psychologists on the one hand, and by economists, statisticians and health workers on the other.

II

Few educational research institutions have a programme touching

on all research areas. Many of them are fairly highly specialized, some (particularly those connected to a university) being devoted to a limited and specified field of research (for example, bilingualism). At the other extreme, some institutes, also particularly among university institutions, have no specified programme and allow more or less complete freedom to staff members to follow their own research interests. Most government-financed or government-dependent research institutions have a broad programme of activity, handling day-to-day problems referred to them for immediate information and advice, as well as producing more long-term studies on problems connected with the evaluation of policies currently in operation or suggested as desirable. Few government research units have the staff, time or money to undertake basic research which is generally left to the universities.

There are a number of autonomous research institutions working outside the orbit of a government department or a university. Various national councils (founded in the 1930's) and a few national institutes of educational research (established since the end of the Second World War) provide examples of this type of centre. Their programmes are usually very wide in coverage, and include both basic and applied research.

Each type of organization has its advantages and disadvantages. A university institution may have full freedom in selection of problems for research (such freedom having an almost irresistible attraction for the research worker) but a government institution usually finds it easier to get funds and implement research findings. The government institution usually has greater facility in obtaining access to schools, and other educational establishments, for the purpose of carrying out research. However, in many instances government research results have been accused of distortion for political considerations. Each country has its own appropriate institutional structure to find; there is no one solution or answer that can be selected as a guide.

Many countries are in danger of setting up too specialized research institutions. It is difficult to change staff and structure of any institution; although the importance of an educational problem may diminish, highly-specialized staff tend to continue to work on their special field of interest with a consequent waste of resources. Only where there is considerable intellectual interchange among research workers can a

country afford highly-specialized institutions. Even then (as was re-commended by the Expert Meeting on Educational Research convened by Unesco in Toronto, August 1968), the functions of any institution should be reconsidered from time to time.

It is probably superfluous to underline the importance of *national* research for national purposes. One of the comments from a Regional Workshop on Research on Primary Education (Bangkok, 1961) is none the less worth emphasizing: "In the long run, adequate research relative to the educational needs of each Member State can only be carried out within the country itself by nationals of that country. Studies made elsewhere can often provide worthwhile leads and in the absence of local data must be used as the basis for development and improvement; but, as experience has shown, often bitterly, me-thods and techniques which work in one system are not always suit-able to another. Similarly, foreign experts, however skilled and sym-pathetic to national needs, are neither sufficiently close to local con-ditions to see many of the implications of research findings nor suffi-ciently aware of the subtleties of national problems to design research which will always be highly relevant. National research institutes or centres, properly staffed by well-trained local personnel and adequate-ly furnished with research equipment, must be developed."

Closely allied to the need to develop educational research centres in each country is the even more urgent need to train educational re-search workers. No country has more than a small nucleus (small, that is, relative to demand) of competent persons with research train-ing and experience. Some countries have no one with suitable training.

III

There are very few full-time research workers. Most persons carrying on educational research work have teaching duties and there is frequently a conflict between time given to research and time given to teaching although, theoretically, one activity should enrich the other. In fact, one of the serious problems of many research institutions is how to obtain sufficient commitment of research workers, both as to total number of hours worked and time of day (or week) during

which the services of the researcher are made available. In point of fact, research activities often wait on teaching commitments.

Most educational research workers have been trained in the psychological-statistical tradition, and the studies carried out by them tend to be firmly anchored to educational psychology and measurement theory. The resulting restrictiveness gives a cohesiveness and focus to educational research and promotes ease of communication among research workers. There is, in fact, a marked sort of international "freemasonry" among educational research workers. But there is the danger that problem areas and research methods which do not fit prevailing research orientations tend to be excluded from research interests, and that skills appropriate to study of many acute problems will not be developed, or assimilated, or transmitted. Promotion of interdisciplinary attack on many educational problems is an attempt to overcome this danger.

There is at present some concern with the type and quality of training provided for educational research workers. As the demand for research and studies expands, practising researchers are increasingly being asked to perform functions for which they are not adequately trained. This is particularly the case for large-scale studies and surveys demanding the collaboration of various persons highly trained in particular disciplines. At a time when interdisciplinary research has proved its value in other areas, education has still to show a measure of progress in this type of effort. Hopefully, adequate answers to training problems will be found soon. Throughout the world many crucial problems seems to call out for educational solutions. Hitherto research in education has for the most part dealt with pedagogical problems. But today, education impinges so broadly on society that the solution of its problems requires the services of competent persons, trained in other ways than provided in departments and institutes of education alone.

It is inevitable that in spite of improvement in the type of training offered, for many years to come most countries, and in particular the countries of the economically developing regions of the world, will have only a small number of well-trained researchers available. The remainder of the staff of research institutions will have to be semiqualified people who will have to be trained on the job. It is too

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expensive and too difficult to train large numbers of people in a reasonable period of time to the level of designing and planning research work. This is not necessarily a disadvantage. Experience has shown that even untrained teachers can be very useful if they are given short, intensive training. At the level of routine work, such as the gathering of data, coding and basic analysis of data, teachers provide a large and available labour supply, often eager to participate in research work, and whose assistance can be invaluable once appropriate organizational steps have been taken.

It has been frequently claimed that educational researchers should initially be trained as teachers before they are trained in research methods. Such a claim probably results from a failure to distinguish carefully the exact skills required at the various levels of research work plus a failure to organize appropriate research teams in which the teacher can play a full role. The research worker's training is sufficiently long and expensive to avoid in so far as possible additional training for a profession which he is not expected to practice. On the other hand, a good case can be made for the inclusion in a teacher-training programme of an introduction to research concepts and methods (e.g., statistics, measurement theory, educational sociology, educational psychology). Professor Kajubi, a leading Ugandan educator, has urged that it is of special importance in countries where the education systems have followed a traditional system largely borrowed from that of another country (as, for example, in former colonies) for the teacher-training institutions to produce teachers who are sceptical of traditional patterns, who not only comprehend the results of research but who demand research to guide them in their teaching.

IV

The prevalence of the desire for change in the training of educational research workers may be in part due to the computerization of educational research. Computers have had an inevitable effect on the size and design of research projects, as well as a more indefinite but none the less real effect on research attitudes. The old-time professor with his piece of research in the bottom drawer of his desk is no longer quite respectable. The prestige of the experimental statistically impeccable sciences has permeated the educational research world. The

enormous investment in human and material resources in "natural science" research has made a marked impression on the educational research world. The relative independence from day-to-day university and government control of the large scientific research laboratories has a great attraction for the educational research world. Conceptions of organization and administration of research are becoming similar. It is probable that this assimilation of the attitudes and characteristics of the world of "scientific" research will have a profound effect on the world of educational research in the next twenty years, and the separation between the educational research world and the universe of educators will more likely result in divorce than reconciliation.

A minor but important consequence of computerization has been the study of the problems of research documentation. This has been one of the major advances of the 1960's, and we can expect to see a continued drive in the 1970's to provide an adequate international indexing system, in order to set up a useful information retrieval system, to meet needs of both research and informed consumer of research. In this particular field of action Unesco, with the International Bureau of Education, has been working for some time in co-operation with both national agencies and certain regional organizations (such as the Council of Europe), to evolve a satisfactory international classification.

<center>V</center>

The availability of the physical means for carrying on large-scale educational research projects has posed the crucial question of how much money should be spent on educational research. The Director-General of Unesco, Mr. Maheu, during the International Conference on the World Crisis in Education which took place in Williamsburg, Virginia, in October 1967, proposed that if serious effective work is to be done in educational research, at least two per cent of a national educational budget should be allocated to research. This is a fairly modest amount, but it is far from what is presently allocated. Few data are available on total expenditure on educational research, but various estimates made of expenditure around 1965 reflect a percentage of considerably less than one per cent in countries (Sweden, Aus-

tralia, United States of America) which were among the leading countries in extent of exploitation of educational research.

Regardless of how much money is spent on research, from the national point of view support of research requires efficient allocation of resources. The Meeting of Experts on Educational Research (Toronto, 1968) greatly emphasized the necessity of planning resource allocation, both to ensure that the various research functions are being carried out (e.g., production of knowledge, development, demonstration, etc.) and to ensure that needed research topics are covered. For such purposes a number of countries have developed or are establishing central research councils for setting up research programmes and controlling research resources, or allocating research funds. It is very likely that an increasing number of these central research organizations will be established in the next ten years. A number of different organizational patterns exist. At one extreme we may have a special council dealing with educational research only and, at the other, one section of a national research council to control all aspects of research. The successful operation of such a council does not seem to depend on its particular structure, but rather on the effectiveness of its relations with the universities. The impact of the successful operation of such a council is likely to shift research out of the traditional university-type pattern harnessed to writing theses and qualifying for degrees and reflecting the special interests of individual professors into what will seem to many a more mechanistic pattern reflecting the demands of the large-scale consumer of research in relation to a tightly organized institutional supplier of research.

The relations of suppliers of research with consumers of research is occupying more and more the thoughts of the suppliers, that is, in this case, of the educational research workers. There is a growing problem of conflict of interests. Some of the questions posed recently by one of Sweeden's leading educational researchers, Professor Torsten Husen, call for careful reflection: "What relation will guarantee the scholar's integrity vis-a-vis the client, which protects the undogmatic and critical attitude so that he is not tempted to become an evangelist for fear of cutting himself off from the pecuniary manna that flows from the client? To my mind, the essential thing is that contract research at an institute does not take on such dimensions as

to trap the scholar in a process that follows a strict timetable, where he is under pressure to deliver "results" at all costs. There must be scope for the "irresponsible" and playful pursuit which constitutes an integrating element of all worthwhile research, a playing with data that can yield the most unexpected results. It is especially important for the scholar to avoid getting ensnared in research of the kind that makes him an executive project director, with his work-day completely absorbed by administrative tasks and where he falls easy victim to the greatest peril of all bureaucracy: giving top priority to making sure that the machinery operates with technical perfection, putting aside any qualms as to what this machinery is really supposed to do."

VI

These are important questions that call for much hard thought from administrators. (Researchers are already thinking and writing on the subject). When governments pay for research, it would seem expedient for government officials and others concerned to consider carefully ways and means of achieving the most effective results from this outlay. It is evident that bureaucratic rules are being applied to judge research processes and results; these are often more than unsuitable; they can be grotesque in their consequences. The field of research administration calls for change, and we can probably hope for some amelioration in the next ten years. The world of educational research will undoubtedly benefit from lessons learned in administering the large scientific research programmes.

In ·contrast, however, with the field of scientific research, in the world of educational research the role of the teacher when compared with that of the engineer is ambiguous, and remains to be clarified. At present the teacher is frequently treated as a consumer of research (which he seldom is in the true sense, neither paying for or otherwise asking for research to be carried on) or sometimes, as a producer of research. Probably some of this ambiguity is due to an exceptionally loose usage of the word "research" when every effort of teachers to study and thereby improve their own day-to-day practice becomes "research". Possibly the amorphous position of the school-teacher in relation to educational research could be solved if his position were

equated to the position of engineer: a trained and able assistant in many research projects, particularly of an applied nature, as well as a trained practitioner in a field of work that the research worker is studying, able to advise the researcher on the actual practices of the field (but not on how to carry out the research itself).

In fact, if we again think of the problem of the engineer vis-a-vis scientific research, we realize that much of the debate about the dissemination of research results to the teacher is centered about false problems, and the real problem is the incorporation of research "results" into teaching and learning practices. Producing a report for teachers to read may not be the most efficient way to make use of research results. A well-known researcher on educational research, Professor Guba of the United States of America, remarked that in industry 5-11 times as much investment was required to develop a practical application from a basic research finding as was necessary to produce the basic idea in the first place. Development was a very complicated process which neither practitioners nor researchers were particularly competent to carry out. Highly trained specialists were required to do the job.

During the past decade a number of countries have made definite efforts to institutionalize the development aspect of educational research. For example, the United States of America and Sweden have set up special centres for this purpose. In the Union of Soviet Socialist Republics the close association of teachers with research work, the widespread utilization of experimental schools and of "problem laboratories" and in general the constant emphasis on improvement of practice seems to create a situation where "development" is not a problem. (It is interesting to note that research plans presented for authorization and funding by USSR research councils include a section covering possible ways of introducing results into practice.)

VII

Summing up this over-view of prevailing present-day trends in order to achieve some idea of development in the world of educational research in the 1970's and 1980's, we can say that without doubt, the problems of education have become so politically important that most governments will be calling for as much assistance

as can be financed to help solve the problems. Educational research as a means of providing information and evaluating situations will be forced into an institutional pattern to provide as rapidly as possible quick answers to urgent questions. Such an institutional pattern gives rise to two major problems: firstly, what is the proper balance (that is, what is most efficient for the provider of resources and user of research) in planning and administration of research between producer "laissez-faire", and governmental predetermination of objectives and control of research processes; secondly, what is the relationship that should be established and fostered between the professional educational researcher and teachers, school administrators on the one hand, between the professional educational researcher and the university on the other. Answers to these two problems are being experimented now. It will be some time before any generally satisfactory solutions are proposed, and decisions taken in the area of scientific research policy will greatly influence the solutions found for educational research.

The Methods and the Materials of Functional Literacy[1]

H. S. Bhola

This paper, partly descriptive and partly speculative, deals with the methods and the materials of functional literacy. Based on the author's experience of literacy work in India and on his work in Tanzania on the pilot project that is part of Unesco's World Experimental Functional Literacy Programme, it also makes use of the work done by other literacy workers in other parts of the world. It goes beyond what has been done to speculate on what can be done in this area, and seeks to bring the insights of social engineering, curriculum planning and instructional technology to bear on the methodological problems of functional literacy.

This paper deals with the methods and the materials of functional literacy. Both the methods and the materials are indeed crucial, first for operationalizing the functional literacy concept and then for testing it.

The methodology is particularly important for functional literacy

workers since the functional literacy concept itself is partly methodo-logical. The materials, again, are important since in the materials is the concept ultimately embedded. The materials structure the teacher-learner and the innovator-adopter interactions in the classrooms and in the discussion groups, on the farm or inside the factory.

This paper is partly descriptive and partly speculative. Natural-ly, the author draws on his experience of literacy work in India and on his work in Tanzania on the pilot project that is part of Unesco's World Experimental Functional Literacy Programme. It also makes use of the work done by other literacy workers in other parts of the world. But it also goes beyond what has been done to speculate on what can be done in this area. It seeks to go beyond description, that is, and seeks to bring the insights of social engineering, curriculum planning and instructional technology to bear on those methodological problems that seem to be the daily concern of all functional literacy workers.

The Methodology

It is the thesis of this paper that the implementation of a func-tional literacy programme is not only an instructional problem but that it must involve a social change strategy as well. A functional liter-acy worker therefore needs to wear bifocal lenses—he needs the pers-pective of a social change agent while he focusses on literacy to make it play a generative role in socio-economic reconstruction of communi-ties. A general theory for planning social change strategies has there-fore been suggested before discussing how curriculum-construction theories may be applied to the problems of building curricula for func-tional literacy projects.

The crucial methodological problem of integration: (i) of literacy with vocational knowledge; (ii) of the verbal with the teaching of manual skills; and (iii) of the core content with the supporting pro-gramme content is discussed in detail.

The Materials

The importance of instructional materials in a functional literacy programme is then discussed in another section. It is suggested that

the ideology and the theory of functional literacy must be embedded within the format of instructional materials produced, and these materials be given to teachers and workers *to use*. That is, the field workers (literacy teachers, supervisors, and discussion leaders) should be seen as *users* of materials and not as curriculum makers. It is also important to have the materials produced both for (a) learners, and (b) teachers; and to have not only (i) written materials but also (ii) audio-visual materials and media, and (iii) packaged demonstrations and vocational workshops for field practice. Special emphasis is put on functional-literacy primer construction, and some hints are offered on the use of audio-visual materials.

THE METHODS

I

The methodology is important in any instructional situation but in Unesco's World Experimental Functional Literacy Programme it is crucial. Unesco, indeed, set out to test a specific concept defined by a set of statements.[2] Not all find the Unesco definition theoretically elegant[3] but with all its definitional shortcomings and with all its lack of conceptual elegance we must analyse the Unesco concept, in terms of the theoretical, ideological, and methodological constraints it might imply and within those constraints invent methodological solutions. It is indeed part of the thesis of this paper that the Unesco functional literacy concept is partly methodological.

It is to the exercise of analysing methodological constraints of the concept and to suggest methodological solution(s) that this paper is addressed.

II

The methodological concerns of functional literacy workers are

[2] See *An Asian Model of Educational Development* (*Perspectives for 1965-80*), Unesco, Paris, 1966, Page 97. See also the *Final Report of the World Conference of Ministers of Education on the Eradication of Illiteracy* (Teheran, September 8-19, 1965), Unesco, Paris, 1965 (ED/217).

[3] John Bowers, "Functional Literacy: Definition and Evaluation", in *Report of a Unesco Workshop on the Evaluation of Functional Literacy Projects*, 3-21 August, 1969, Institute of Education, The University of London, U.K.

not new, though not much help has been available to them from professional communities.[4] Most of methodological ideas have, therefore, been generated *within* the literacy enterprise. In December 1968, for instance, Unesco organized a seminar[5] that was to discuss primarily the questions of methods and techniques of functional literacy. The seminar was not as barren of ideas as the preliminary mimeographed report[6] on the seminar might suggest. Some of the presentations, at least, did have some methodological content and these are briefly analysed below.

First a report from Brazil. We quote:

> The use of a computer in a Brazilian project is expected to cut by half the amount of time needed to learn to read. The CVRDC Mining Company, Brazil, which has started a functional literacy programme for its staff with Unesco-assistance, has used a computer to determine the frequency of words and syllables used by local workers. This literacy programme is closely linked to the technical promotion and vocational training of the staff.
>
> The computer has shown that the basic vocabulary of 2,300 words is made up of a total of 540 different syllables. Sixty per cent of the words use as little as 9 per cent of the syllables; and 20 per cent of the syllables, i.e., about 100 syllables, meet 80 per cent of the speaking requirements. On the basis of these data,

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[4] Literacy has not so far interested university communities. Understandably, no help in conceptual clarification or methodology has been forthcoming from that source. The only university group that the author has seen engaged in literacy *research* was Project Literacy of Cornell University, Ithaca, New York. However, the research questions they discussed were more or less culture-bound. These seem remote to the problems of literacy work in underdeveloped parts of the world. See Project Literacy now collected in H. Levin and Joanna P. Williams (eds.), *Basic Studies on Reading*, New York: Harper-Row, 1969.

Unesco itself, while it has published lots of materials on evaluation plans and problems has not paid similar attention to methodological concerns. A Unesco paper dated 11 May 1967, entitled, "How to Develop Work-Oriented Literacy Curricula" with all its foresight, was general in nature. Another Unesco paper dated 6 October 1967, "Functional Literacy Methods (ED/WS/34)", was rather rudimentary and merely talked of method being based on the "psychology of man at work". A comprehensive monograph on methodology is promised by Unesco but is still unavailable.

[5] Seminario Internazionale Unesco-UNLA, Rome, 14-20 December 1968.

[6] Report of the II Commission, "Pedagogical Conclusions", The Seminar. (Mimeographed)

a teaching programme has been worked out which should cut the normal duration of reading lessons by half.[7]

As we can see, the essential point made in the above description is that of the use of a computer to make word and syllable counts and to use the minimum of syllables in writing reading-materials. This then was *one* answer to the question on methods of functional literacy. The only additional information that the Unesco-UNLA seminarians got from *the oral* report in Rome was that the mining instructors were used in the programme as teachers and they taught in a *one-to-one situation.*

Another experience brought to the Rome seminar related to the technical promotion of illiterate workers.[8] The programme taught literacy and vocational skills together in the environment of an industrial plant. It was essentially a vocational training programme preparing workers for specific posts with definite promise for promotions to the new posts. Reading, writing, numeracy, reading of drawings, understanding of scientific principles of physics and mechanics, all formed part of the instructional content.

The methodological task consisted in task analysis, analysis of symbolic, verbal, and representative content needed to teach vocational tasks, and combination of the two types of content into some pragmatic progression. The structure used was manual (or vocational) structure, and linguistic considerations were allowed to go overboard, hoping that motivations and opportunities to use learnt words in the plant would carry learning to objectives. In individual sessions the

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[7]From Unesco Features as reproduced in the *Indian Journal of Adult Education*, January, 1969, Vol. XXX, No. 1, Page 15. This same report was presented, orally, at the Unesco-UNLA seminar in Rome in December 1968.
A recent report, entitled, "A Functional Literacy Experiment in an Industrial Environment: Brasil—Vale do Rio Doce", issued with *Literacy—A Newsletter*, January, 1970, Unesco, Paris provides an excellent description of the Brazil Project. Unfortunately, most reports thus far from the Brazil Project had emphasised the use of the computer and thus had been unfair to the Project.

[8]This experiment is described in great detail in C. Maguerez (*La Promotion Technique du Travailleur Analphabete,* Paris: Eyrolles (61 Bd. St. Germain, Paris 5e), 1966. A summary of this book was presented by the author to the seminar in Rome.

well-known method of teaching in industrial education was used. That was to present an actual machine unit, present simplification of reality through model or chart, help to understand the underlying principle, help learners to construct responses on the simplified model and test performance on the actual machine unit.

It was the description of a useful experience of vocational/industrial training with some literacy added, if reading labels can be called literacy. Nevertheless this description pointed out the difficulties in integrating literacy with vocational training.

A report to the seminar from Esfahan, Iran,[9] again described the methodological steps in curriculum building for workers in an industrial setting. The steps employed were as follows: (a) orientation of the management to the Project's purposes; (b) ascertaining the role of written instructions in the factory's production tasks; (c) on the basis of an analysis of costs of illiteracy, the selection of 'points of impact' for curriculum development; (d) study of the technical processes around the points of impact; (e) timing and sequencing of selected topics for instruction to achieve improved and efficient production; (f) production of daily instructional sessions; (g) preparation of guidelines for the group leader, especially with regard to the ways of helping learners to acquire a global mastery (comprehension, recognition and writing of 500-600 words; (h) production of supporting teaching aids for daily instructional sessions; (i) training of group leaders; (j) execution of programmes; (k) production of a book for the learner group as a summary and by way of consolidation of learning to date.

The report from India[10] emphasized two training elements of the Indian Project: vocational skills and intellectualization of the economic tasks performed. That is, farmers were given opportunities to see why certain steps were taken and not some others. Civics and social education were taught where they were found directly related to the basic productive concerns of farmers. Instructional modes were basic-

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[9] J.C. Leven and C. Bonanni, "Taj Factory Experimental Programme (A Case Study)," Iran/Unesco/ILO/UNDP Project (Esfahan Pilot Scheme), Rome: The Seminar, April, 1968.

[10] T.A. Koshy, "Work-Oriented Literacy Pilot Project in India: Pedagogical Methods and Techniques—An Analytical Description", Rome: The Seminar. (Mimeographed.)

ally these: organization of production-cum-demonstration camps, and establishing vocational groups in villages; conducting 7- to 15-day vocational courses for teaching the adoption of the high yielding varieties programme; creation of discussion groups; and use of audio-visual materials and the printed word.

Literacy classes were created out of the discussion groups and they were taught through specially written work-oriented adult literacy primers—probably one of the better set of primers produced within the Unesco World Experimental Functional Literacy Programme.

Being individual contributions from different projects these reports were necessarily descriptive of what methodological problems were faced in each one of the projects and how they were solved.

There is need to rise above specificities and to discuss methods of functional literacy on a conceptual level indicating: (a) what methodological constraints are inherent in the concept, (b) what alternatives are provided by curriculum theory and instructional technology, and (c) how methodological solution-invention may be done for a particular occupational group, in a specific milieu to achieve objectives of functional literacy.

III

Method is a special form of procedure, especially in any branch of mental activity, says the *Concise Oxford Dictionary.* The question for us then is: What is the "special form of procedure" for implementing a functional literacy programme ?

Bruner in his book, *The Process of Education,*[11] has talked of the varied structures of disciplines and, therefore, of the different method of teaching for each discipline. Right there goes our hope of having one method for functional literacy for we know that a functional literacy programme, in its instructional aspects, must involve teaching of reading, writing, arithmetic or accounting, vocational skills that may be industrial or agricultural, citizenship, health, and something else of relevance to a particular community.

Education is a process involving disciplines and their structures, learners with various motivations and learning styles, and with differen-

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[11]Jerome S. Bruner, *The Process of Education,* New York: Vintage Books, 1960.

tial verbal and graphic abilities: and teachers coming from different social backgrounds and with different self-images and capacities for work. Also, all teaching-learning situations cannot have the use of the right instructional technology but may have to do with less. Methodology thus is not simply a technical matter but is also the art of the possible.

The Encyclopedia of Educational Research in fact avoids saying anything by way of definition of educational or instructional method but goes directly to "Methods of Teaching" and deals with the review of research on methods of teaching under four headings:

    a. interpersonal relations and the teaching process;

    b. patterns of teaching;

    c. techniques for individualizing teaching; and

    d. specific activities in teaching, which includes such matters as classroom motivations, relating learning to student needs, developing interests, making assignments, appraising progress.[12]

Talking of the method of adult education (an area, by tradition, the closest to literacy) Hallenbeck has this to say:

> The general purpose of adult education is to help adults to increase their capacities and their satisfactions in life and to understand and accept the responsibilities of membership in their communities. This overall objective covers a multitude of specific objectives. Since there is a great variety of purposes and since the combinations of circumstances are almost infinite in number, the problem of method is not solved by inventorying methods which have been successful but by considering factors which determine method. ....When the problem of method is solved, the problem of technique arises. Method is concerned with how best

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[12]Chester W. Harris (Ed.), *Encyclopedia of Educational Research* (Third Edition), New York: The Macmillan Company, 1960, page 848. The index to the same volume refers to the methods of teaching of adult education, agriculure and extension, arithmetic, reading, writing, business education, character education, college and university education, English, literature and communication arts, family-life education, health education—to mention only a few entries. Patterns of instruction are also called methods, such as the project method, laboratory method, activity method, etc. The lecture method, and the discussion method are also methods of education; as is the method of individualized instruction. (Pages 850-855). Since functional literacy programmes are amalgams of varied instructional contents we cannot think in terms of *the* method of functional literacy.

to do the particular adult education job, technique with how to carry out the method selected. Consequently, the adult educator, after clarifying purpose, must be able to select successfully from the vast array of methods and to execute methods through techniques.[13]

The above statement could in fact be applied to functional literacy programmes as well if the *economic* emphasis is added to various other concerns for improving adults' capacities. The overall objectives of a functional literacy programme would in fact cover a multitude of specific objectives which can be clustered around at least two or three middle-level objectives:

1. Teaching of reading, writing, and arithmetic,
2. Teaching of agricultural or industrial skills,
3. Teaching of improved social, co-operative, and political skills.

Obviously we would need the linguistic method,[14] the vocational method, and the extension method[15] to implement our programme.

A Rational Approach

A rational approach thus seems to be to drop the search for *the* method of functional literacy but to consider instead the factors that might determine method in a particular functional literacy programme. In other words, it seems more appropriate to discuss the methodology of functional literacy and apply it to particular programmes of functional literacy in particular socio-economic and cultural milieux.

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[13]Wilbur C. Hallenbeck, "Methods and Techniques in Adult Education," in Unesco, *Adult Education: Current Trends and Practices,* Columbia University, 1949.

[14]There are again many methods of language teaching, none proved more important and effective than the other and which again are seen to respond differently to different situations and groups. See Williams S. Grey, *The Teaching of Reading and Writing: An International Survey.* Monographs on Fundamental Education, X., Unesco, 1956. Also Jeanne Chall, *Learning to Read: The Great Debate,* McGraw-Hill, 1967.

[15]"The problem of method in extension education is a major one. The situation confronting the potential learner and the teachers is constantly changing. Continuing and more carefully designed research is needed if extension educational agencies are to be effective." (*Encyclopedia,* op cit., Page 496).

A functional literacy programme is not merely an instructional programme. People must change (through education and extension) but social and institutional structures must also be changed, and physical structures (canals, wells, clinics, etc.) must be built. These are not educational problems but those of planned social change. A functional literacy programme is thus also at the same time a social change programme. Functional literacy *is one approach to social change.* The methodology of functional literacy thus must be handled in two aspects: (a) as a strategy for planning a social change programme; and (b) as a problem of curriculum construction for a community of adults—with literacy playing a generative role in the total programme

FOCUS ON METHOD OF

LITERACY

VOCATIONAL SKILLS

ECONOMIC DEVELOPMENT

SOCIO-ECONOMIC CHANGE
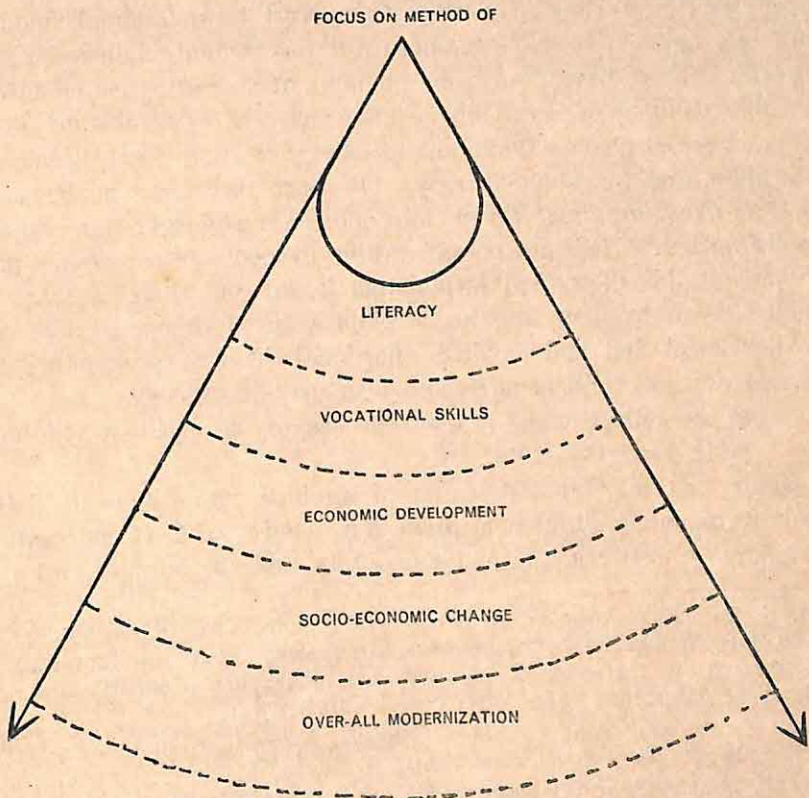
OVER-ALL MODERNIZATION

Fig. 1. Progressively widening methodological perspectives are necessary since Functional Literacy is one approach to social change and modernization

of instruction, innovation, and change. (See Figure 1 for a perspective on functional literacy methodology.)

IV

THE STRATEGY OF PLANNED SOCIAL CHANGE

There are many theories available dealing with the planning of socio-economic change suggested from all the different social science disciplines.[16] These theories relate to both developed and underdeveloped societies. They may range from Kurt Lewin's simple model—unfreeze, move, refreeze[17]—to more or less multidisciplinary change theories. There have been some attempts at suggesting *action* theories for the planning of social change that may be applicable to all the different social change situations, including, of course, extension, adult education, and functional literacy. One such theoretical model, namely, *The Configurational Theory of Innovation Diffusion* was suggested by the author.[18] It is not possible within the scope of the present paper to present this theoretical formulation in full but some ideas are included below to show how an enveloping social change strategy must be developed first and detailed functional literacy programme then carried out and implemented within an over-all strategy.

The theoretical model in question suggests an equation as follows:

$$\text{Max } D = f(C, L, E, R) \quad \ldots$$

meaning that maximum diffusion of an idea, an attitude, a skill, a social/economic/cultural innovation is a function of C (Configurational Relationship between an innovator entity and the adopter entity), L

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[16]H. S. Bhola, *Innovation Research and Theory.* Columbus, Ohio: The Ohio State University, 1965, presents a review of theoretical literature and of research in the area of planned social change. (Available from the School of Education, The Ohio State University).

[17]Kurt Lewin and Paul Grabbe, "Conduct, Knowledge, and Accepance of New Values," *Journal of Social Issues,* 1, 1954, 64.

[18]H. S. Bhola, "The Configurational Theory of Innovation Diffusion," *Indian Educational Review,* Vol. II, No. 1, January, 1967, Pages 42-72. (Available in USA from ERIC/Educational Administration, University of Oregon).

(Linkages *between* the innovator and the adopter and within innova-
tors and adopters if these should be collectivities), E (Environment of
change effort), and R(Resources that may be financial, technical or of
personnel).

It is for the innovator group (change agents) to ensure that on
the basis of a system analysis of the community or society they are
planning to change the work to maximize the four conditions repre-
sented here by C, L, E and R.

The first task of a planner of a social change strategy (and of a
planner/methodologist of functional literacy) will be to *identify* the
change agent(s) and the potential adopter(s). The change agent
may be an individual, a group, an institution or a culture itself. Simi-
larly the adopter may be an individual, a group, an institution or a
whole culture. The configurational theory of innovation diffusion thus
identifies 16 different possible configurational relationships between the
changers and the potential adopters, as follows:

ADOPTER

		Individual (I)	Group (G)	Institution (IS)	Culture (C)
	I	I-I	I-G	I-IS	I-C
	G	G-I	G-G	G-IS	G-C
CHANGE AGENT (INNOVATOR)	IS	IS-I	IS-G	IS-IS	IS-C
	C	C-I	C-G	C-IS	C-C

The functional literacy planner when working out a strategy for
planned change must know within which patterns he himself will be
working and which will be the most dominant ones. As a part of a
Project team and administratively linked with a bureaucracy he may
find that the IS-I, IS-G, IS-IS and IS-C configurational relationships
may be the more relevant to his work than other configurational re-
lationships. The fact that most of the functional literacy projects have
government support provides the functional literacy planner with a
strong configurational relationship in terms of *influence*.

It should again be clear to the social change planner (and the

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functional literacy worker) that the human individual is ultimately the locus of all change. That is where change must occur, live, and multiply. The new idea, the new attitude or skill, and an innovative social, economic or cultural pattern must live within individuals. This makes the individual important but it does not mean that the innovator must reach every individual separately. Fortunately, men live within social structures: families, groups, and institutions: and an important strategy of change would be to contact and influence the others through them. This is one way of stating the celebrated two-step flow of information hypothesis.

The linkages *between* and *within* the adopter and the innovator systems must be considered. In functional literacy projects where more than one department or ministry will be working, linkages *within* the innovator system cannot be taken for granted. Linkages must be clearly established and kept open. Linkages must be created also *between* the innovators and adopters. Also, of course, *within* the community (adopter system). It is in fact the bias of communication theorists that creation of communication channels within a community is itself generative of change.

Environments can be created. They can be made to sustain hope and enthusiasm provided due attention is paid to the engineering of social environment and needed resources are committed. Mass media and leadership can be used to create conducive environments. But good consistent work must follow for people to keep believing in change and for feeding further hope among communities. Devaluation of words of leaders and innovators is the most unfortunate thing to happen to a social-change programme.

Resources of expertise, and money are obviously needed. There are, of course, known management principles to make the money go farther, and the personnel to give their best. Also, modern technology can help us to store, multiply, broadcast instructional messages from the better, more efficient personnel—all this to a certain degree. But these problems should be indentified, duly weighed and solutions devised as part of the over-all strategy.

We cannot go into further details of the theory but it should be obvious that the first stage in the implementation of a functional literacy project is devising a social-change strategy. One model that

could be used for this kind of work has been suggested. It is now that we must turn our attention to the second chain of methodology—curriculum construction for teaching adults literacy and new economic and social skills.

V

The Methodology of Curriculum Construction Applied to Functional Literacy

For a general discussion of the methodology of curriculum construction the reader is referred to any standard work on the subject. Here we will be engaged primarily in the exercise of applying the methodology of curriculum construction to the instructional aspects of a functional literacy programme.

Three Aspects of Curriculum Construction

Curriculum making involves at least three different things: (1) Ideology, (2) Theory, and (3) Instructional Technology.

Ideology. Ideology is an important part of curriculum making. An educator or a field worker would reflect his value system in the curriculum he sets out to design. He will start with faith in some basic objectives and principles which he holds as self-evident and worthy of perpetual support.

A worker in the field of functional literacy will also have an ideology that will determine the shape of the curriculum he designs. For example, he would be committed to literacy as a new human right even though he would have additional reasons to support literacy. So whenever a choice has to be made between 'development alone' and 'development and literacy' he will support the latter. Also, in the actual implementation of the functional literacy programme he will be committed to the educational process and would not choose the manipulative approach. He will not merely want change but would also want client groups to understand change and learn to cope with it. He will also be committed to people's participation in making the decisions which will affect their homes, fields, and places of work.

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The preceding ideological commitments are clearly linked with the choice of methods and techniques used in a functional literacy programme. Decision will not be made for the learners but with them, and this would mean a particular kind of teacher-learner interaction. The educational process would not be curtailed. Right means will be used for right ends. The cards will not be stacked against the community but explanations will be offered and offered again, however slow or frustrating the experience for the field workers. The choice of substantive content and activities to be included in the functional literacy programme would not be unduly disruptive of the life of the community though change must always involve some disruption. Efficiency will be subjugated to the sociological health of the community.

Functional literacy programmes, again, follow a *selective* approach in the choice of learners. The functional literacy approach, unlike the mass approach, selects certain occupational groups. These occupational groups must be such that can benefit from literacy and can in turn play a generative role in the over-all development of the country. This, again, is an ideological choice that dispenses with the usual thesis of equal opportunities for all, right away, from the very beginning.

The ideology in a functional literacy programme and the methodological constraints it implies should thus be obvious.

Theory. Theory is another essential component of all curriculum making and naturally of curriculum making in functional literacy programmes. The two essential theoretical antecedents of functional literacy are: (i) that literacy when directly linked with an economic development programme would act as a multiplier of economic change; and (ii) that literacy when taught as a part of the teaching of economic skills would be inherently motivational for adults in developing countries. In other words, the theoretical position is that literacy can play a generative role in the socio-economic development of communities; that the literacy pill will have to be gilded with economic advantage both in process and effect; and that since poverty is an acutely felt deprivation in developing countries a functional literacy programme will be well received.

This is a short and simple outline of the theoretical antecedents

of the functional literacy programme.[19] . As in the case of the ideological aspects of curriculum making, these theoretical aspects also put definite constraints on the method(s) designed for implementing the programme. The obvious constraints are: that literacy must be taught in the context of and as a part of the teaching of a chosen economic and vocational skill; and that literacy must be taught to select, more or less, homogeneous occupational groups.

Instructional Technology. The third component of curriculum construction is technique or, more generally, the technology of instruction. We know enough today about the structure of knowledge, about the psychology of individuals and sociology of groups and communities to understand our client groups in classes and outside in the communities and devise both programme and methods that are appropriate. At the same time electronic hardware has given us immense capacities for storing, duplicating, and broadcasting knowledge through radio, recordings, films, television—and paperbacks. Together these two advances in electronics and behavioural sciences have given us a powerful educational technology that we can use to solve curricular problems and to design programmes and methods responsive to our particular ideologies and theoretical orientations. But even here some situational constraints are involved. The first set of constraints are perhaps found in the professional limitations of those who may come to work on these projects. They are by no means all of them instructional technologists and common sense cannot go further than it actually does. A second set of constraints emerges from the peculiar situation of our work. We cannot use television where none exists, nor make use of films if none are being made in the country we happen to be working in.

VI

THE CONTENT OF FUNCTIONAL LITERACY

Let us now apply, on the one hand, the ideological constraints of

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[19] For a more detailed discussion of the theoretical antecedents of the concept of functional literacy, see H. S. Bhola, "Functional Literacy—The Concept and The Programme," a paper presented to the Annual Study Conference (August 1969) of the University of East Africa, since published in the *Indian Journal of Adult Education*, Vol. XXX, No. 12, December 1969, Pages 3-4, 10-16.

the concept, and, on the other, the insights of instructional technology to the selection, organization and presentation of the content of functional literacy. To apply any method(s) of teaching we must know what is to be taught. A prior question, therefore, is: What is the content of a functional literacy programme ?

It may be recollected that the concept of functional literacy commits us to demonstrate the generative role of literacy in development. Hence both literacy and economic skills (selected to be improved for economic development) must form the content of the programme. Another theoretical directive accepted by us is that literacy must be taught in the context of and as a part of the chosen economic activity. In other words, the teaching of literacy must be integrated with the teaching of better economic skills in the chosen economic sector.

Again, though 'literacy and vocational teaching' form the *core* of the functional literacy content, they are not enough. (See Figure 2 on page 31.) These are necessary but not sufficient for a functional literacy programme. The functional literacy project, while it provides vocational education and literacy, must at the same time—and this is a partly ideological and partly theoretical commitment—provide supplementary content in health, hygiene, child care, house building, co-operatives, and citizenship. It must not be forgotten that the idea is to produce an efficient citizen—farmer and an efficient citizen-worker and not merely an efficient production unit.

Some further points related to Figure 2 may be noted here. Literacy at the core of the diagram should be broadly interpreted. Arithmetic should be an important part of teaching in addition to reading and writing (1, 2). Understanding of symbols, graphs, drawings and maps should also be taught. The latter is not as difficult to do in an industrial setting as it is when working with rural groups.

Again, as indicated in the figure literacy must be taught as integrated with the economic activity. It does not mean, however, that everything else in the programme should also be integrated *similarly*. For example, literacy will not also be a component in the teaching of citizenship, health, and housing. Trying to bring literacy in everything would be absurd. We cannot give to the same group of learners a couple or more parallel starts in literacy ! Audio-visual and discussion methods must be used in teaching this other content.

It is important to think here of the system metaphor both to understand the comprehensiveness of the content and the need for a
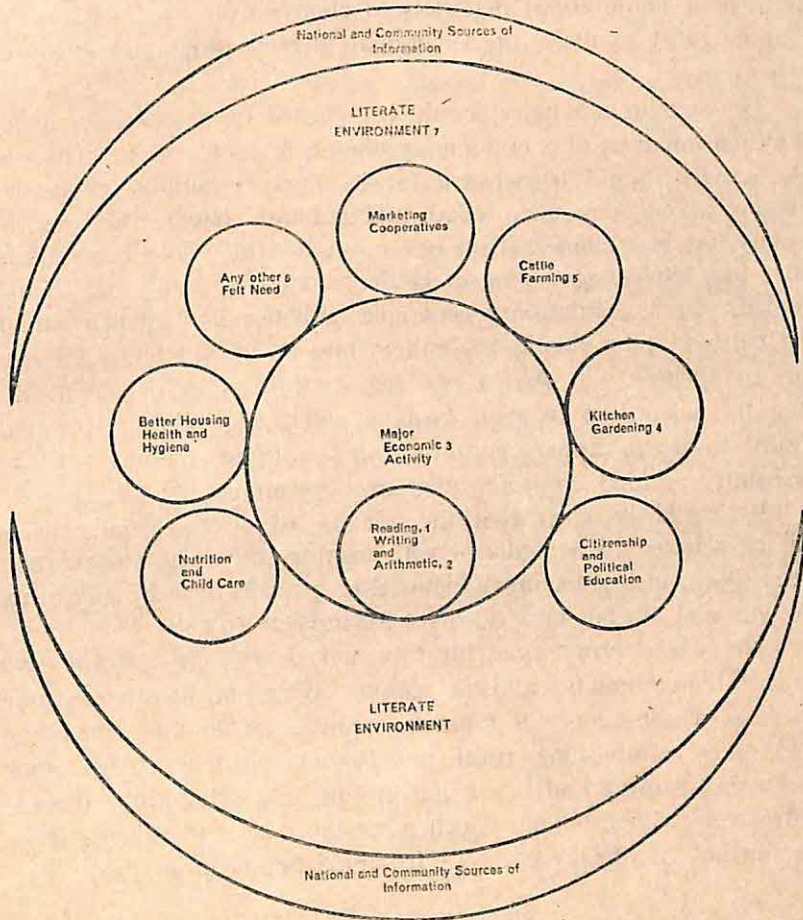

Fig. 2. A graphic presentation of the contents of a Functional Literacy Programme

diversification of the methods and the materials. We must agree that literacy should be taught as a part of the teaching of economic skills. But the primer alone would not teach all the economic skills: it would, by itself, only have taught some verbal information. Lots of actual

demonstrations on the farm or factory must be made part of the instructional system. Also, printed material is not the only resource available to the functional literacy methodologist. He has the whole cafeteria of audio-visual materials to choose from, to teach visually what he must to make the functional literacy programme truly comprehensive.

The economic activity should be selected on the basis of a detailed system analysis of a community chosen for field work. The economic activity should be selected for its likely generative properties in bringing about economic, social, and cultural change. Once a *major* activity has been chosen it doesn't mean that all *minor* economic activities like kitchen gardening or cattle-keeping for family use should be banned. In fact subsidiary economic activities like kitchen gardening and cattle-keeping should be built in into the programme—though not into the primer. In Africa one major problem of development has been the separation between farming and cattle-raising. It would be absurd to teach farmers cotton-growing without reference to cattle husbandry or food crops for their own consumption (3, 4, 5).

It should be clear that the content of circles around the core will be selected in accordance with local needs. The various content areas shown in the diagram (Figure 2 on page 31) are by way of example only and are not prescribed for all projects (6).

The whole programme must be linked with the literate environment in the community and the nation. Where no literate environment exists in a community it must be created by the functional literacy workers by establishing rural newspapers, opening village libraries, sponsoring reading and discussion groups, and establishing community centres for radio listening. Such work must be undertaken *along with* the opening of literacy classes. It should not be postponed (7).

VII

Further questions must now be raised and answered. How will integration be achieved at the *core* in the teaching of literacy and vocational skills ? How will a list of instructional activities for learners be generated ? The economic activity may have its own cycle and calendar and literacy has its own: how will the two cycles be reconciled ? What will be the sequencing ?

The chosen vocational activity is the core of the functional literacy programme and integration between literacy and vocational training the crux of the problem of methodology. It is implied in the very choice of the economic activity that it admits of considerable improvement and innovation. The farmer or worker can improve his productivity so much through adoption of new skills that he will not only better his own economic status but also contribute significantly to the over-all national development effort.

But skills, as we have discussed before, are only part of the problem of social and economic change. A whole set of variables are involved in the engineering of change. To go from a present economic situation, $EC_{(P)}$, to a future economic situation, $EC_{(F)}$, there may be involved: (i) teaching of new information and knowledge, (ii) teaching new skills, demonstrating new ways of doing things, and use of new tools; (iii) promoting new attitudes to work, to the organization of work; and (iv) making available new tools, and other material inputs. In planning economic change, therefore, a comprehensive view would be necessary.

In the following we will focus only on the *instructional* aspects of changing a present economic situation $EC_{(P)}$ to a future innovative economic situation $EC_{(F)}$. These instructional aspects can be grouped under three main headings—information, attitudes, and skills. (See Figure 3 below.)
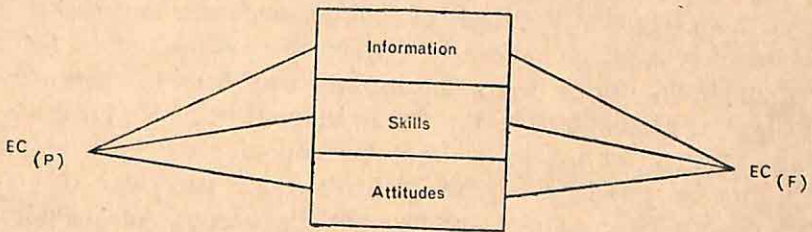

Fig. 3. Three-lane path from the present economic situation to a future economic situation

Teaching the Core

Teaching the core of the total functional literacy programme (See Figure 2) has priority. Detailed objectives, both general and specific, must be defined in terms of needs, possibilities, and time schedules.

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These objectives must be translated into day-to-day instructional activities. To do so we must go through the typical curriculum making steps: analysing objectives, listening activities, clustering related activities, putting them in a learning sequence; developing teaching techniques and materials to teach small instructional units—ultimately to achieve the over-all objectives as laid down.

Task Analysis. In the case of functional literacy that must involve teaching of a vocational skill, the first thing would be to make a task analysis of the economic activity to be taught. This will be done by the agricultural/vocational specialist and the curriculum maker together. The future vocational pattern, $EC_{(F)}$, will be analysed in terms of hierarchy of skills. This hierarchy will take different shapes: in agriculture it will be a time hierarchy so that preparation of the field may be taught first and application of fertilizers later on. In an industrial setting the hierarchy of tasks may be differently organized: teaching the handling of a spanner may come before and teaching dismantling a gearbox later on.

Let us suppose that the task analysis has given us a list of smaller *tasks* and their arrangement as follows:

$$T_1, T_2, T_3, T_4 \ldots \ldots \ldots \ldots T_n.$$

Teaching of these tasks will involve teaching many new *manual* skills. But as we did indicate before, bringing in a new way of accomplishing economic tasks is not only a matter of teaching new skills. New *attitudes* (and new pieces of information) are involved. The teaching of some of the new tasks may involve new attitudes. Before, for example, T_4 can be learnt the learners may have to change their attitudes towards the task itself. An agricultural task may involve collecting cowdung for use in the field but collecting cowdung, attitudinally, may be considered socially inferior by a particular caste or social group. Hence a new attitude must be learnt. An analysis of attitudes that must be learnt to perform new tasks may then give us a series representing attitudinal learning:

$$A_1, A_2, A_3, A_4, \ldots \ldots \ldots \ldots A_n.$$

The tasks and attitudes so analysed must then be studied for their verbal (or what could be called their symbolic/linguistic) content. This is an important step because the symbolic component of the new economic task must provide the basis for teaching literacy to

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adult learners participating in a functional literacy programme. What do we mean by verbal and symbolic component? Very simply it means that reading, counting, diagram-reading, measuring would be involved if the new economic activity has to be taught meaningfully to the adult learners. For example, to teach new methods of wheat cultivation in Punjab, India, or cotton cultivation in Tanzania, the farmer must develop not only new scientific concepts of agriculture but he must also learn a sense of precision in the dimensions of time, lengths, quantities and volumes. The ridges must be of the right height and must be placed at exact recommended distances. The amount of fertilizer used per acre must be just right in weight. The *dawa* added to water to prepare the spraying solution must be right too. To prepare a farm plan the farmer must understand the concept of area, and should be able to measure it, and divide it. To be able to understand what he will get (outputs) for what he will spend (inputs) he must learn accounting. He must be able to read labels, cautions on chemical containers and instructions from the government extension office. This symbolic analysis of tasks should give us a list of symbolic content such as:

$$S_1, S_2, S_3, S_4, \ldots\ldots\ldots\ldots S_n.$$

The task analysis of the economic activity will give us the 'vocational units' and their sequence. The attitudinal analysis will give us what attitude changes need to be handled. These may be handled separately through films, campaign posters, or lectures, or may be taught as part of the symbolic materials. The symbolic analysis is the basic ingredient and dough from which a literacy programme of reading and writing will be developed. Herein is one important opportunity of achieving the integration between 'economic skills' and 'reading and writing' by developing special reading materials which show the interrelationship between the two from the very beginning and thus can sustain the motivation of adults struggling with the written word during their first few days in literacy classes. We will have more to say about this later. However, it should be noted here that to achieve the teaching of the core different types of teaching approaches will be needed. Economic skill will need field demonstrations or workshop practice. Needed also will be poster campaigns, films or radio dramas for attitude change. And it will involve the use of primer, readers, num-

ber books, etc., to teach literacy. This fact should not be lost sight of: that a functional literacy programme is comprehensive in terms of content, methodology and in the use of materials. (See Figure 4 below.)
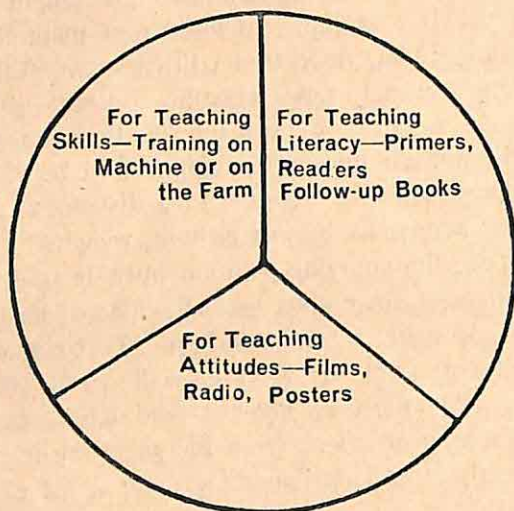

For Teaching Skills—Training on Machine or on the Farm

For Teaching Literacy—Primers, Readers Follow-up Books

For Teaching Attitudes—Films, Radio, Posters

Fig. 4. Methods and materials of teaching Functional Literacy

Teaching the Non-Core Content

Let us again examine Figure 2 showing the content of a functional literacy programme. Let us note, again, the comprehensive nature of the functional literacy programme. Indeed some functional literacy programmes have been seen to have degenerated into literacy classes with a primer, and that is all. The teaching of attitudes (through use of dramatic materials and films) is lost sight of and even the teaching of *skills* of agriculture or industry are sometimes forgotten. (This happens more often in programmes in the agriculture sector.) But almost always the supplementary activities shown in the outer circles in Figure 2 are forgotten.

Unless these various supplementary content areas are also put through the curriculum making process, and limited objectives are defined for each of these areas no teaching is likely to take place and the total programme is likely to be seriously truncated.

Let us repeat here that it is not necessary, in fact it is absurd, to try to teach all these content areas as integrated with literacy. We do not have to write separate primers for teaching the various supplementary content areas nor do we have to wait until our learners have become literate and can read our folders and leaflets. Most of the teaching in these content areas will be done with the use of visual materials and in discussion groups. Some of these content areas may need skill demonstrations. Only in the later stages of the programme when adult learners in classes have already learnt to read, will written materials like leaflets, booklets and follow-up books be used to teach these supplementary areas.

Figure 5 on next page summarizes in one place the discussion in this section.

VIII

Figure 5 presents three converging streams of instruction in a functional literacy programme with comprehensive content. Some of the ideas included in the figure need further comment.

First of all it must be noted that the concern of a functional literacy worker should not be limited to the small group of adult learners in his literacy classes. He must consider the community they are part of. Some of the important decisions regarding change may not be made by the adults in the classes but by husbands, or fathers in their families. It is important, therefore, to design concurrently a programme directed towards the general community. It should be noted then that along the three streams shown in the diagram some of the programmes are meant for literacy classes and the general community together.

Now we must address ourselves to the important question of integration. How are the three streams to be integrated into one programme ?

Integration of Three Instructional Streams

Problems of integration are part of all curriculum construction. In school curriculum also, it is attempted most often to provide a focus

to all learning. The intention is that knowledge should not be presented to students as compartmentalized but that they should be enabled to
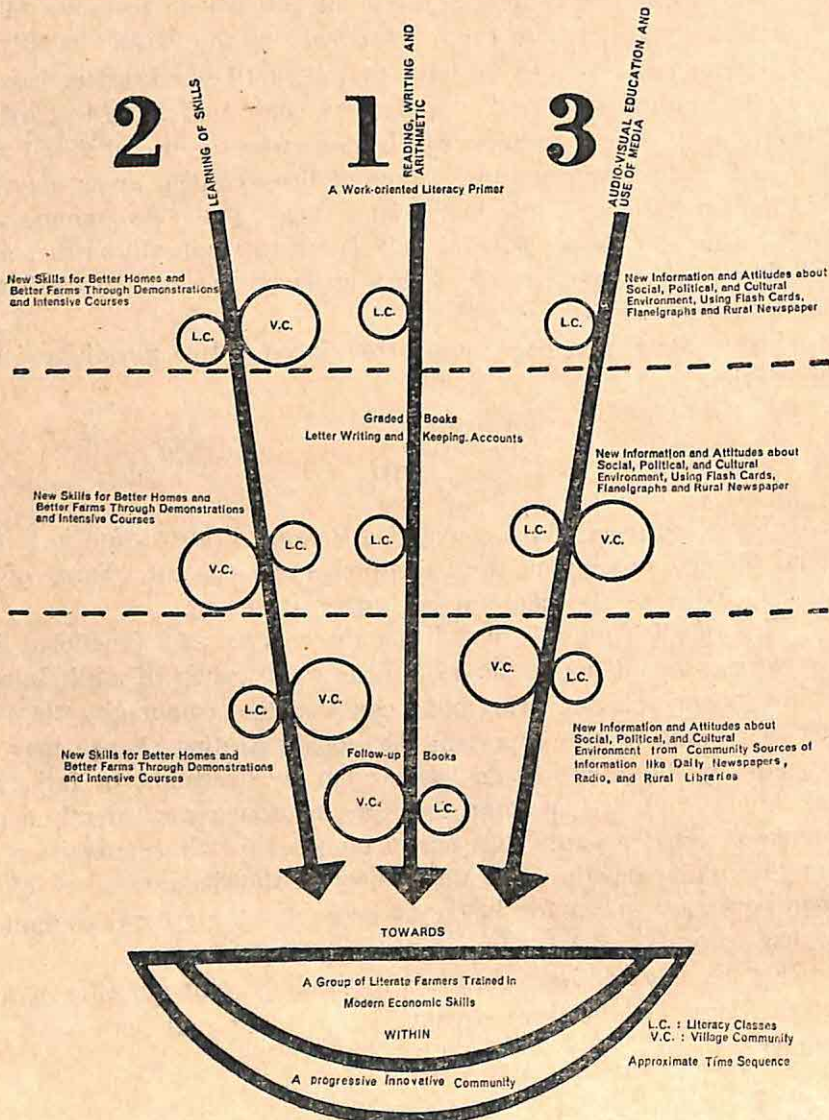

Fig. 5. Three converging streams of instruction in a Functional Literacy Programme

learn to look at the events of their lives in their totality. Various

methods have been devised in the school context to achieve integration; some of those can help the functional literacy worker as well.

Integration is, of course, part of the theory of functional literacy. We may recollect one theoretical bias of functional literacy: that literacy should be offered to learners in the context of and as a part of a chosen vocational skill. In other words some integration of literacy teaching and the teaching of vocational skills is essential for the implementation of the functional literacy concept.

It must be understood at the outset that there is no such thing as hundred per cent integration. In fact two curriculum makers may not always agree on the quality or extent of the integration achieved between various aspects of content in one learning unit. Integration, therefore, is partly an intuitive matter.

Integration may be of two general kinds: *organic* integration, and *additive* integration. Organic integration may be achieved when two content areas are taught as one discipline, when their separate structures are combined in one, and when such generalizations are developed that result from the two disciplines together and not from either of them separately. Social studies may be considered an instance of the organic integration of history, geography and some civics. But it is not always possible to achieve total organic integration between two content areas. While some of the integration between two areas of content may be organic the remaining content may have to be integrated into a common programme by what may be called an 'additive' process.

Both types of integrations will have to be resorted to to build a comprehensive programme of functional literacy.

Organic Integration

Primer and Readers. The literacy primer provides an excellent opportunity for integrating literacy skills and vocational knowledge. This is one reason why some of the functional literacy workers are so sanguine about writing special primers for functional literacy programmes. Without a primer, they think, something very important will be missed.

Here we may go back to our discussion of the theoretical anteced-

ents of functional literacy. It has been indicated before that it is an important theoretical constraint that literacy—the teaching of reading and writing—should be undertaken in the context of the chosen vocational activity. This is possible by using the insights provided by the global method of teaching reading. It is not necesary to describe here the details of the global method of teaching literacy. Essentially, it consists in presenting to the adult learners a meaningful sentence that they can understand and relate to their immediate interests. This sentence is analysed into words and then into syllables and alphabets to teach reading and writing to adult learners. As a Unesco document says:[20] "It is as easy to learn to read 'This is hybrid corn' as it is 'This is a tall man.'" The functional literacy concept and the linguistic theory thus can support each other. An organic integration is possible to achieve in the primer by the adoption of a global method of language teaching and offering sentences with vocational content, in some linguistically supportable sequence, to teach reading. But not all integration can be organic as we have stated before. A lot of it will have to be obtained additively through detailed programming, sequencing, and interlacing. We will deal with this point more in the following.

Reconciling Vocational and Literacy Cycles

The problem that occurs in teaching the *core* (Figure 2) is reconciling the time cycles of teaching literacy and the economic skill. In industrial settings, perhaps there is more control of the total instructional situation and things may be comparatively easier to handle. For example, if literacy has to be taught to textile workers both the vocational cycle and the linguistic can be controlled to *coincide* with each other *more or less* as shown below. The interlinking lines indicate corresponding points of contact.

As indicated in Figure 6 on page 41, the two cycles could be made to match in terms of time so that when adults came to classes to learn 'reading and writing' they have already got some *oral* vocational vocabulary and some vocational/manual experience, in the background of

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[20]"How to Devlop Work-Oriented Literacy Curriculum," A Unesco Document dated 11 May 1967. (Mimeographed)

which the primer had been constructed. Notice that the lines of con-
nection betwen the two cycles slope from the vocational cycle to the
literacy cycle.
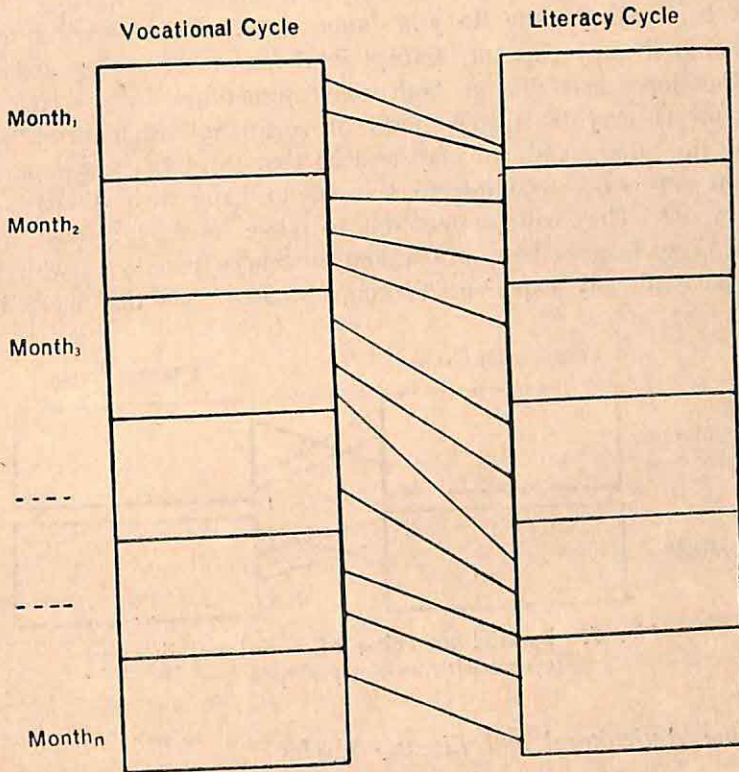
Fig. 6.   Parallel matching of the two cycles:
Vocational and Literacy

It is not always necessary to have the lines sloping in this fashion.
This kind of sloping is important where the vocational experience is
completely *new* to adult learners as in a textile factory which would
draw its labour from neighbouring villages—we are, of course, talking
of developing countries—and where the labour force would never have
had any textile experience, and might as well have never seen a power
loom. However, where adult learners have some experience in the
vocation being taught in improved form some flexibility is possible in
matching time cycles.

Take the example of a special course for women interested in home economics. Whatever the amount of *new* techniques introduced in cooking, cleaning, bathing children and so on, there would be lots and lots of experiences that women would have had already in these areas before they came to join home economics classes run on the functional literacy pattern. Except in the areas of sewing and stitching, the slopes may thus go both ways: sometimes literacy (the verbal component) may be a step ahead of vocational teaching while most of the time the vocational may lead so that there is enough practical/manual experience available to learners to hang their discussion and literacy on. They will be thus able to relate words, sentences and the verbal knowledge (these words and sentences convey) with things they have already experienced occupationally. See the figure below.
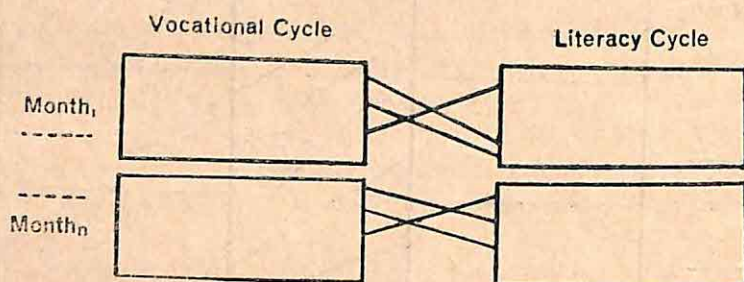
Fig. 7. Parallel matching of vocational literacy cycles with two-way slopes

Matching Agricultural and Literacy Cycles

The problem is more complex when we seek to reconcile literacy and agricultural time cycles. Let us examine a specific case. The example is that of the functional literacy programme[21] for cotton farmers in Tanzania.

The initial plans of operations agreed that functional literacy be taught n two nine-month sessions. Discussions with the agricultural staff in the region, however, seemed to suggest that nine-month sessions were not appropriate. They pointed out that the agricultural year

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[21] Unesco/UNDP Work-Oriented Adult Literacy Pilot Project, Lake Regions, Tanzania.

for the Sukuma cotton farmer could be divided into two parts—the dry season and the wet season. During the dry season (May-October) the cotton farmer was on a kind of forced leisure while during the wet season (November-April) he was extremely busy in preparing the field, and planting cotton.

It is a well known extension principle that innovative agricultural practices should be demonstrated to farmers at a time when farmers themselves are engaged in similar work on their farms. This improves the probability of demonstrated practices being immediately put on trial and possibly adopted. It would have thus been useful to design a programme that taught literacy and new agricultural skills to farmers during November-April (with greater emphasis on agricultural skills) and then put through a concerted effort in teaching literacy and adult education during May-October. In such an event, during the second year, the farmers might have been on their own, and would have been able to handle extension leaflets and literature to follow agricultural advice.

However, the agricultural staff was of the view that during November-April of the year the farmers were too busy to attend *regular* literacy classes (though they assumed that they would not be unwilling to attend agricultural demonstrations) and should not be asked or expected to attend literacy classes.

As a result the project decided to hold literacy classes during May-October—during the dry season—and agricultural demonstrations were postponed to the months of November-April.

A detailed evaluation of the project's impact is still in the future but some questions may be asked: Were the farmers really too busy in the months of November-April to attend classes ? If they were too busy to attend literacy classes, were they not too busy *also* to attend demonstrations ? Did agricultural demonstrations really take place and, if so, did they not snap contacts with the literacy programme ? Was the primer really understood since the new skills discussed in the primer were not demonstrated to the learners ?

The two cycles—the vocational and the literacy—thus are not integrated as we had hoped. The only integration that was available was *inside* the primer where the content dealt with was improved cotton cultivation. The situation was not tragic but not ideal either. The

farmers did have a repertoire of agricultural skills on which literacy could be hung. The primer did include *verbal* knowledge of improved cotton farming. Also, demonstrations could still have been organized in simulated situations.

IX

SEMI-PROGRAMMED APPROACH TO INSTRUCTION

We have already indicated that integration can and should be achieved between the vocational and reading skills by writing suitable primers which teach reading through the global approach, using sentences and words from the vocational field. However, this is one of the few opportunities for an *organic integration*. The supplementary content in the functional literacy programme (See Figure 2 on page 31) will have to be integrated through addition and convergence (See Figure 5) and through *semi-programming of the teacher(s)*: that is, by providing the teacher with as detailed instructions as possible about what to teach, when, and how.

The attempt should be to structure, as far as possible, the teacher-learner interactions both *inside* and *outside* the classroom—and yet structure with enough built-in flexibility so that purely local needs can be accommodated in the instructional programme.

Defining Roles and Integrating Teams

It is necessary to define roles and to integrate role incumbents into teams. In an industrial setting most often the same person, probably a foreman will teach both vocational skills and literacy. Also, a factory or workshop provides a much more organized control system which can be used to instructional advantage. But even there the need for a detailed teacher's guide that establishes instructional formats is important. In other words it is important to help the teacher, as much as possible, in visualizing every possible step. This does not take away the teacher's freedom as it is sometimes naively stated; on the contrary it helps him professionally to establish a minimum level of performance. If he is professionally first-rate he may

do better than what he has been told to do, but if he is not, he can at least perform at that level. This semi-programming of the tutor is essential both for programme integration and programme quality.
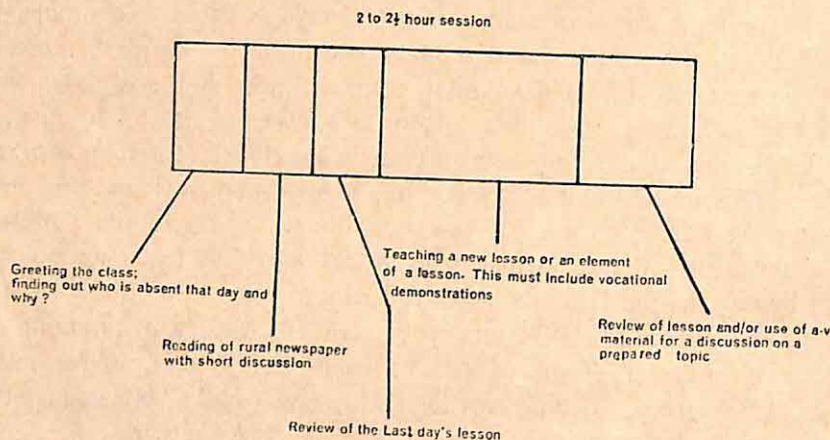
In the agricultural context it is not always possible to combine the functions of a vocational and a literacy teacher in one man. Extension workers are few in developing countries and they are given wide areas to look after. Assigning them to a class of 20 to 30 farmers would be considered impossible, even scandalous! Literacy workers talk sometimes of taking a successful farmer and training him as a literacy teacher, but there is no such thing, in developing countries as a successful literate farmer who would agree to teach agriculture-cum-literacy to his less advanced colleagues. One never meets a man to fit that description. Naturally we are left with a *team* approach where we have a group of ten to twenty underpaid, under-trained voluntary literacy teachers working with one or two extension workers in agriculture in an area. Integrating their activities is all the more important and expectations from both the teacher and the extension worker need to be most clearly laid down. One way of doing this is to work out lists of detailed expectations of work from each member of the team and also to articulate the points of collaboration between them.

To ensure that a literacy teacher on a functional literacy team does not relapse into teaching the primer alone he may be given a format for his daily lesson. One such format is suggested on page 46 (Figure 8).

Implicit in the following (page 46) format is the assumption that the adult class is being run as a *class*. We know, however, that all learners do not come to their class at the same one time and that they keep dropping in right down to the time when the class is about to end. It will thus be unfair for some of the early comers to wait for the others to join! Also, all adult learners in a class do not learn to read at the same speed. Some may reach Lesson 15 while a few others may still be at Lesson 6. This again breaks up the very concept of a class—which means a group of learners who are more or less at the same one stage of learning. If there never is an occasion when some lesson or material is presented to *all* adult learners together at *one* time we are not really teaching a class but a collec-

tion of individuals who share the same for following their individual
interests, but who go on at their own pace of learning. Schools in

2 to 2½ hour session

Greeting the class;
finding out who is absent that day and
why ?

Reading of rural newspaper
with short discussion

Review of the Last day's lesson

Teaching a new lesson or an element
of a lesson. This must include vocational
demonstrations

Review of lesson and/or use of a-v
material for a discussion on a
prepared topic

many technologically advanced countries are trying to do just that—
provide individually planned instruction. But the skill at the hard-
ware (computors and projectors and tapes) needed for organizing In-
dividually Planned Instruction is clearly beyond our means. Also,
adult learners in a literacy class must be provided with group experi-
ences and helped to emerge as a group. A literacy class must, there-
fore, at least during a part of the time, be run as a *class*.

The problem is difficult to solve. In the present writer's view the
teacher should insist on the learners coming to the class in time. In
fact it may be useful learning in itself to develop better concepts of
time and to come to class reasonably[29] punctually.

Another bias of the present writer is that the class should be run
as a class. There will be differences in the competences of adults in
a class but the teacher should use this situation by asking those who

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[29]In the remote rural areas of Africa and Asia it is not always possible to
live by time. Farmers may tell time by the sun, the church bell, or by a
bus that may be both infrequent and uncertain. Some resourceful teach-
ers in Tanzania used a drum to assemble their classes—almost everyone
arrived on the third beat of the drum.

are ahead to teach others and thus bring up the class together, thereby also providing the class useful lessons in cooperation.

Even where the literacy worker and the literacy teacher do not want to insist on the 'class' idea and want everyone to go on his or her own pace the *format* suggested is still usable. The newspaper reading in the beginning of the class and the group discussion (organized around a flash-cards set or a flannelgraph story) at the end of the class are useful opportunities to run the class as a class and to develop group cohesiveness.

A Total, Integrated Programme

Integration cannot be left to the teachers as we have indicated so often. In an actual instance teachers were given a primer and written materials on arithmetic, agriculture, clean water and bilharzia. It was hoped that everything would take care of itself: the teacher would integrate the materials into a functional instructional programme and also take the initiative to establish team relations with the agricultural worker. Well, nothing of the sort happened. Quite naturally the teachers taught the primer and then went home. The functional literacy programme became the primer-teaching programme.

To avoid this event an occurring systems approach must be followed in designing the total programme for the field for the whole duration of a programme phase. The programmers should particularly consider the teaching team: How many people will be involved in it ? Will there be a separate literacy teacher and a separate vocational teacher ? Will there be an animator or a community organizer added to the team ? Will the teacher be whole-time or part-time ? How will they relate with each other ? Who will take the initiative for what, and when ? Who will be the team leader ?

It has been seen that on some of the functional literacy programmes no feedback has been built into the programme, even though they are supposed to be experimental programmes. Not even the periodical achivement testing of adults to test their level of reading and comprehension has been undertaken. Also, the programmes have no beginning and no end. Since no achievement testing of any kind is done nobody knows what objectives were achieved, when, and by whom ? The classes begin but never end !

Even at the risk of being wrong, literacy classes must be given some completion dates: when most of the adults would have been enabled to read with comprehension at a particular predetermined level. And related with this is the requirement that achievement tests must be designed for periodical testing of the adults for: (i) reading and writing, (ii) vocational skills, and (iii) adult education content.

A functional literacy programme may suffer from underplanning and never from 'over-planning'. Perting techniques can be applied with advantage in implementation of programmes. Planning may be done for a year or two in advance. (See below.)

A Suggested Blank for Developing Field Programmes on Class/Regional/Project Level

	Vocational Skills/ Demonstrations	Literacy and Numeracy	Audio-Visual Materials and Media
1971			
January			
Session 1			
Session 2			
....			
....			
Session$_r$			
February			
....			
....			
December			
1972			
....			
....			
June			
....			
December			

This is a blank that can be used at various levels of programme planning. It will be something under constant change and adaptation. Each subsequent blank will have more and more details. But by attempting to plan one or two years ahead a synoptic view will be possible, objectives will remain in focus, and the teaching of some content areas would not be neglected by default.

THE MATERIALS

I

It is rightly said that revolutions in education are not brought about by philosophers and researchers of education but by textbook writers and designers of instructional materials. Philosophers may discuss emerging human needs and new societal objectives. They may discuss what the coming generations should study for a better world tomorrow. Researchers may develop new concepts of educational methodology and study learner motivations and teaching styles. But the common teacher in the classroom is unlikely to be aware of the new philosophies and of the new methodologies. Should he be aware of these he would not know how to translate them into classroom actions. It is the textbook writer and the maker of instructional materials who take powerful philosophic ideas, important research findings, and instructional techniques and put them in books and teaching aids thereby structuring classroom interactions and teaching and learning. Most teachers may then be using a new book or a teaching aid without understanding the philosophic and the methodological ancestry of what they may be teaching from.

The situation has to be the same in the field of functional literacy, even more so. The seventh-grade school leaver who becomes a literacy teacher in a village class or a worker-volunteer who teaches in a labour colony is not an educational philosopher, nor a curriculum designer. He would probably understand a few general ideas about the concept of work-oriented functional literacy but he would not be able to translate the concept into classroom procedures and field ac-

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tions. At best he would be able to do one thing: with proper train-
ing, he will use with adult learners in his class the materials provided
to him. It is thus for the functional literacy specialist to put his con-
cepts into curricula, syllabuses and instructional materials. He should
let the literacy teacher merely be a *user* of materials.

Materials are indeed crucial for the success of a functional liter-
acy programme. They provide the basis for instructional transactions
between the teacher and the learner; between the viewer and the de-
monstrator.

It bears repetition that it is *within* and *through* instructional
materials that integration of content—literacy, economic skills, and
general education—has to be achieved by the curriculum maker and
the instructional materials producer. Also, unless materials are spe-
cially designed for the teacher himself (as, for example, guide books,
and discussion sheets) functional literacy materials must be designed
for adults. We cannot possibly give the teacher a reference book on
agriculture or a manual on health and ask him to teach that material
to adults. This would be to ask for the impossible. What we would
indeed be asking the teacher in that case would be to read the refer-
ence material, understand it, develop out of his study of this mate-
rial generalizations useful for his adult learners, and organize and
present those generalizations with enough clarity and simplification so
that these can be understood by the learners. This is clearly impossi-
ble. In fact all this must be done for him. All these steps must
already have been taken by the curriculum maker and the instructional
materials specialist. The material given to the teacher should be in
the form in which it is to be presented to adults and the teacher should
only be trained as a user of those materials. It might be that the
teacher himself would be studying that substantive content for the
first time—along with his learners !

Functional literacy is a comprehensive concept. Implementation
of the concept naturally requires a comprehensive programme ! The
core of this programme is the teaching of the 3R's integrated with the
teaching of economic skills. But supplementary instruction on politi-
cal education, civics, co-operatives, health and hygiene must also be
provided. The total content does not have to be organized *temporal-
ly*. That is, we do not have to wait for the adults to acquire literacy

skills first so that they can then *read* materials on health, housing, co-operatives and citizenship. There are other teaching techniques—the audio-visual methods—that help us to present a meaningful and comprehensive programme from the very beginning.

It is sometimes argued that the load of acquiring literacy is too much for adult learners struggling with the skills of reading and writing, and that things should not be made more difficult for them by offering them supplementary materials on health, co-operation, and such. First of all the assumption about load has not been tested and may be is a projection of our disbelief in the adult learner. Further, it goes against the concept of functional literacy with its focus on the whole man and only emphasis on the man as a producer. Also, diversification of content by adding supplementary materials (as in Figure 2 on page 31) is likely to provide a novelty factor so that adults have something interesting and meaningful from the very beginning of classes. This novelty in content may in fact hold many adults to the classes and keep them from dropping out. Also, it is very important that adults should be taught and given experience in information handling—one of the most important attribute of innovators and early adopters in communities. In discussion groups built around the teaching of supplementary content (through audio-visual aids and media) adults are provided excellent opportunities in information handling which should ultimately contribute to their learning literacy skills. Lastly, such an approach is contributive to creating in the communities an intellectual environment that is the most important part of organizing a functional literacy programme.

One-legged Race: The Emphasis on the Verbal

Most functional literacy programmes tend to be one-legged races. They use the verbal (both in written and oral forms) but the audio-visual methods of teaching are completely forgotten. Unfortunately, most of the people today in leadership positions in functional literacy and adult education programmes went to school when there were no such things as audio-visual aids. Some of them, most of them in fact, have managed to keep oblivious of the whole tradition of educational technology. Some of those who have familiarity with educa-

tional technology and with the use of audio-visual materials know it at a level of awareness but have no competences in their planning, production and use. The result is unfortunate. One important educational resource is completely neglected; and that, a resource that is tailor-made for adult education in developing communities.

In the following then we will deal with the various materials of functional literacy, indicating their possible role in a functional literacy programme, and indicating briefly their special instructional features. It should be clear, of course, that instructional materials is a subject detailed enough for treatment in a separate book. Many excellent sources are available for use.[23] In the following only very short descriptions are included to sensitize literacy workers to some of the problems that are involved in the use of these materials in the context of developing societies engaged in literacy programmes.

In the table (on page 53) are included most of the materials that may have to be produced for implementation of an effective functional literacy programme.

II

FUNCTIONAL LITERACY PRIMER

The literacy primer designed to teach reading and writing is considered an important part of a functional literacy programme. Its importance is sometimes so exaggerated that once a primer has been written and produced the project team 'gets high' and everything else is forgotten.

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[23]See Karl U. Smith, *Cybernetics Principles of Learning and Educational Design*, New York: Holt, Rinehart and Winston, 1966; Edgar Dale, *Audio-Visual Methods in Teaching*, New York: Holt, Rinehart, and Winston, 1969; Educational Policies Commission: *Mass Comunication and Education*, Washington D.C.: NEA, 1958; Review of Educational Research: *Instructional Material—Educational Media and Technology* Vol. xxxii, No. 2 (April, 1962) ; *New Teaching Aids in the American Classroom*, Washington: US Office of Education, 1960; S.L. Ahluwalia and H.S. Bhola, *Audio-Visual Aids in Community Development*, New Delhi: National Council of Educational Research and Training, 1964.

TABLE

Instructional Materials Needs of a Functional Literacy Programme

	Materials For Learners	*Materials For Teachers*
WRITTEN MATERIALS	Primer	Teacher's Guide
	Exercise Book for Writing	
	Arithmetic and Simple	
	Accounting Book	Teacher's Guide
	A Book of Personal and	
	Business Letters	
	Graded Books (In Series	
	with the Primer)	Teacher's Guides
	Follow-up Books for Independent Reading	
	Special Newspaper (With	
	Readability Controls)	In-service Training Materials (Correspondence Courses or Newsletters)
AUDIO-VISURL MATERIALS	Drillcards for Language Teaching	
	Posters and Charts	
	Picture Albums	
	Flashcard Sets	Teacher Guide Sheets
	Flannelgraph Stories	Teacher Guide Sheets
	Community Resources	
	Folk Media	
	Films	Discussion Sheets for Use in
	Radio	Forums based on
	Press	Discussion Community Resources
DEMONSTRATION KITS, AND PACKAGED COURSES	Demonstration Kits with Tools and Implements	Guide Sheets
	Packaged Technical	
	Courses	Guide Books

Can we have a functional literacy project for a specific occupational group without having to write a special primer for that group? There is no one answer.

There are some literacy workers who feel that a special primer is not necessary. However, experience has demonstrated that the use

of *any* primer in a functional literacy programme deducts from both the strength and the visibility of the functional approach. The programme may indeed soon degenerate into a conventional literacy programme where the teaching of vocational skills may be completely forgotten or no integration may take place between literacy and the learning of new vocational skills. Even if vocational skills are included adult learners may be unable to link the parts and see any connection between the various streams of learning. This is basically against the functional literacy concept.

No doubt some other literacy workers consider the primer as basic and essential. The specially written functional literacy primer is considered as one point where integration of work and word can not only be achieved but also made visible for the adult learner. It *is* also considered important for sustaining the selectivity principle; that is, the primer helps to select learners—cotton farmers, fishermen, textile workers—thus giving homogeneous learner groups.

How Many Primers ?

Some functional literacy projects may decide to have a dozen or more primers. While some geographical areas may have a really diversified occupational population there may be errors of judgment involved in having so many primers. These errors may come from two sources:

1. It may be assumed that whatever content is to be taught in a functional literacy primer is to be taught through a primer. Literacy workers may then be struggling with the idea of having an arithmetic primer, a health primer, a house-construction primer, in addition to a primer on a selected economic activity.

2. Many primers may also result from a lack of proper system analysis and defective decisions about what is a generative economic activity in that system. The concept of functional literacy considers selectivity as important. In one system it is possible, but improbable, that there should be one dozen or more economic activities needing immediate and equal attention,

Writing a Functional Literacy Primer

Functional literacy projects have so far undertaken to write their own primers. Private enterprise has not yet entered the field of writing of functional literacy primers. References are available on how to write primers.[24] However, these are often of limited assistance. In the writing of traditional primers the freedom to select sentences and sight words is much more than that available to a writer of a functional literacy primer. Let us see how.

Readers are, of course, aware of the various methods of teaching reading. The alphabetical method is the oldest and most of us are likely to have learnt to read with this method. There is the sight-word method in teaching-reading, and then the global method where meaningful sentences are shown to the adult readers, then broken into smaller units—phrases, words, syllables, alphabets.

It has been found that while all of these methods have some advantages, they have some disadvantages as well. The *eclectic* approach uses the best of the available approaches. It often starts by presenting some words in association with pictures. These words are then presented in one or two meaningful sentences that adult learners understand and find related with their lives. Sentences are then again broken into words. The words are then broken into syllables or alphabets depending upon the nature of a particular language. The learnt alphabets are then presented in different permutations and combinations to make new words and sentences. Thus is taught the basic linguistic process: that from known alphabets you can read new words and sentences—words and sentences that you had never seen before.

The Eclectic Method with Lesser Freedom

Most functional literacy primers that have come to this author's notice use an eclectic method. However, it should be noted that here the eclectic method is subject to serious constraints in writing a functional literacy primers. In a usual primer the writer has a much

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[24]Karel Neijs, *Literacy Primers—Construction, Evaluation, and Use,* Unesco: Paris, 1961, Pages 112.

greater universe of ideas; the freedom to organize those ideas is greater; and, therefore, the choice of vocabulary that represents those ideas is more extensive. In the functional literacy primer the universe of ideas is limited—the primer has to tie itself to the teaching of better skills in a chosen occupation. The hierarchical or chronological ordering of these ideas is also largely predetermined—because each vocation has its own structure and hierarchy of tasks. This means that the vocabulary that represents those ideas or describes those tasks is also predetermined and is pre-ordered according to the logic of skills.

The ordering of vocabulary demanded by the teaching of new skills is not the same as the ordering of vocabulary demanded linguistically. The writer of a functional literacy primer is thus under two different pulls—the linguistic and the occupational. It does not mean that the two are irreconciliable. It does, however, mean that the freedoms in respect of choice of words are fewer and the writing of the functional literacy primer demands greater discipline.

Some Content More Plastic than Other Content

Take the example of a primer written especially for women.[25] The content to be included in it may be child care, balanced diet for the family, health and hygiene, sewing and stitching, etc. In such an area *different* content organizations are possible. One could begin with cooking and nutrition and then go on to other subjects. Or, another could begin with environmental cleanliness and go on to other topics.

Every topic will mean the use of some key words which the writer of primers can group together. From these word groups he can choose a cluster of words that offer the best beginning, linguistically, and then build subsequent sections of the primer on those words. For example, he could follow a route—b, c, f, a, d, e,—as shown on page 57.

But all occupational areas on which primers may be written do not offer the same flexibility in the organization of content and therefore in the linguistic organization of key words.

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[25]It could, perhaps, be said that home science is not an economic activity in the strict sense of the word. In some communities, however, you find many more women offering to join literacy classes than men. A programme of special interest to the women hus becomes necessary. Also, home science as taught today offers a large amount of occupational/scientific content.
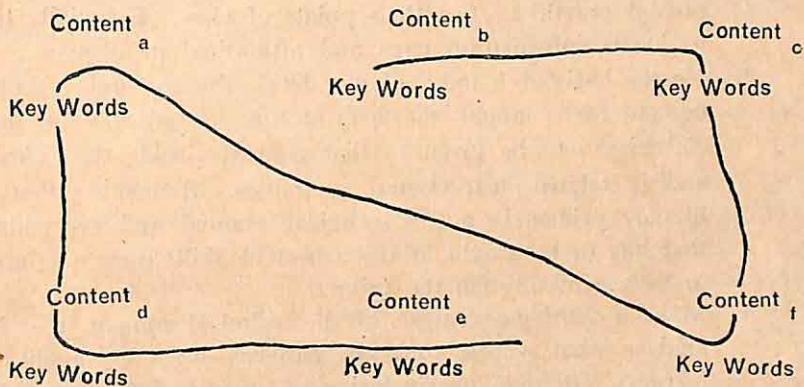
Team Approach to Primer Writing

Few literacy workers would confess their inability to write a primer. One might even offer to write it all by himself over a week-end. A good primer is not a one man's job. This is not to say that there are no people in the world who can do so. But such individuals are rare. The primer team must include a linguist, an instructional materials specialist, a content specialist and a field worker who knows the people and the area. They do not have to be working all the time around a table though some hours sitting around the table together would be necessary.

The following steps may be involved in the writing of a functional literacy primer.

1. Get a write-up on the improved occupational skills to be taught to adult learners. This must be authorized by the agriculturist/technician responsible for policy in that sector. Such a write-up on cotton farming, for example, may be a list of recommended practices with detailed technical notes on spraying solutions, making of tie-ridges, etc.

2. Undertake an observation study of the occupational group from which learners will be drawn. See them in their fields or work-places and in their homes. Find out what practices they follow now, and why. Find out what problems are likely to come up in the adoption of new im-

proved practices. Get their points of view. Especially try to locate information gaps and attitudinal problems.

3. On the basis of 1 and 2 above, decide the amount of skills-content to be taught, the level of this content and the special biases to be given to that content—inside the primer and in related instructional activities. Remember that a literacy primer is not a technical manual and everything that has to be taught in the aspect of skills does not have to be taught through the primer.

4. Make a *symbolic* analysis of the technical content, that is, analyse what words, concepts, patterns, must be taught to learners. In one case inclusion of areas, volumes, may be necessary; in another, reading simple diagrams may be important. (See earlier discussion on this topic on pages 34-35.)

5. Articulate the linguistic method to be used in the writing of the primer. Considerations of past practical experience and experimentation both would decide what language teaching approach would be used. But it must be articulated clearly for each member of the primer-writing team. This approach would also decide what *format* the primer should use in its lessons. Literacy primers at least in the first 10-15 lessons must follow a rather rigid format so that adult learners who are doing their first reading ever are helped to acquire a mental *set* and can start anticipating the kind of learning behaviour expected at various parts of the lesson. It is also important for the literacy teacher that a *specific* format be followed so that he can be trained easily in the use of this primer. Also, he can be helped to internalize the objectives of a lesson and to understand how the various parts of the lesson together contribute to those objectives. The use of picture association techniques; the use of sentences or words, that is, the choice between the global and word method; the breaking of words; do we go on to syllables to alphabets; the use of word elements to make new words and combinations; relationship between writing and numerical concepts: all these

questions and issues must be decided upon beforehand because they all decide the format of lessons.

6. Make lists of words that are needed to teach units of content, cluster them and put them in the order they would be used or should be introduced. Here the linguist would be helpful most of all. (See discussion above.) It is he who would now bring to the attention of groups the linguistic research available in the language on vacabulary counts, syllable counts, word difficulties, needed linguistic elements that must be learnt to be able to cope initially with the linguistic code, etc.

7. Now must begin the phase of group work. It is now that the group should sit together and work out the lessons. It should be clear to those who have participated in such work that it is not neat and clean work that you start and you finish. It is something you start and abandon, to make a new start. There are so many false starts that a neophyte would be discouraged ! This is one stage where no formulae can be suggested for creating a primer. Logic will help but more help will come from the heuristic, the creative, the intuitive.

How good a primer is will be judged from results. One does not have to wait for the primer to be finished and printed and then put into a testing phase with lot of fanfare and expense. A group of two women or men, representing the occupational group the primer is being devised for, should give the primer-writing group considerable feedback about whether the primer can teach. Here again perceptive groups would pick up ideas of what should go into the teachers' guide.

Materials Integrated with the Primer

Literacy primers using the global method generally have accompanying charts and drill cards—to drill words until they become sight-words. Some have pictures, both to create associations as well as to clarify and expose events, methods and processes. The teachers' guide-book, the primer, a score or more posters, and bundles of drill cards, the blackboard and the flannelboard thus make the teachers' kit.

While nobody could object to the merits of such an instructional kit there are some objections of a practical nature that apply to producing drill cards and using flannelgraphs in developing countries. First, the drill cards cost a lot of money to print. Second, the teacher is sometimes overwhelmed with all this material in his kit and keeps on losing track of the bundle he needs on a day. Third, the teacher can write words on the blackboard and drill them as much as he wants. An objection generally raised is that teachers do not write well. But it should be taken care of in the training of literacy teachers since the alternative is so expensive. As regards flannelboards they have to be imported at high costs. The picture posters accompanying the primer can be stitched together in a poster set and hung on the wall for studying when necessary. They need not be put on the flannelgraph board.

Teaching of Writing—When? And How?

The teaching of writing should be a part of functional literacy. Some workers would say: 'Writing can wait.' Not in functional literacy. The modern world is a world of cash economy involving counting, accounting, auditing, planning. Again, modern vocational skills need precision in measuring, weighing, observing. All these things cannot be handled through memory. They must be written down.

Some primers include writing as part of the primer. This is wrong for two reasons. One, the book can be used only once—and why should this be so in a developing country where the production of a primer may cost half a dollar or more. Also, the primer restricts the amount of writing an adult learner might have liked to do. Why restrict him? And this is not like life. Who writes in his books? The primer can, however, display model writing to which the learners may aspire and approximate to.

Numeracy

Should any arithmetic be taught through the primer? My own personal bias is that it should be. We cannot teach all there is in arithmetic through the primer but the way figures are written and some

basic mathematical ideas should be introduced as a part of the primer.

No primer would of course take the learner very far with arithmetic. A separate book on arithmetic, therefore, should be a usual part of the functional literacy materials. Such a book could be programmed and the learners could follow it independently.[26]

Testing the Primer

Testing the primer is important. It can and should be tested at various stages. To begin with the first three to five lessons should be pre-tested. The completed primer should be tested in full. Revisions must be carried out. There is no such thing as a single-shot primer even when the writer is a genius. Good primers are not only good team work but they are also never the first drafts.

Publication of a Primer

A team of primer writers may have a surprise—an unpleasant one—waiting for them if they do not watch closely the production of the primer. The primer itself and the lessons making the primer, of course, have a structure of their own. Words, sentences, syllables may be broken, and placed with respect to each other in space, to help visual acuity or to help association or to serve some other linguistic purposes. If the lay-out artist and the typographer are left to themselves they may not understand the rationale and may take undue liberties with the text. I know about a primer written and revised and tested with considerable labour and investment of time and it came back from the press in a mess. The lay-out artist, to spread the pictures evenly, had disturbed the original structure of the lesson which required the adult to look at a picture, supply the verbal response, see the written word and associate the verbal and written, and go on from there. By taking the picture on the next page the lay-out man destroyed the lesson and almost killed the primer. Beginning a

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[26]One such book on arithmetic, in programmed format, was prepared for use of new-literates in India. Pre-testing with adult learners gave encouraging results. H. S. Bhola and K. D. Sharma, *Navin Ghanit* (New Book on Arithmetic), Literacy House (P.O. Singar Nagar), Lucknow. (*In Print*).

new lesson in the middle of a page (to save paper and plate-making costs) was another liberty taken that did the primer a lot of harm.

Graded Readers

'Primer' is generally the name given to the little book used to introduce the barest minimum of reading skills. The adult learner does not become even semi-literate on a primer. He would still need to be held by the hand and led. This is done through graded readers directly related to the primer.

As the very name suggests these books are graded with respect to the primer. Sometimes they are given the name of 'Primer 2' and 'Primer 3'. Whatever the name the intention is to build the books up from the primer controlling (a) the number of words introduced, and (b) introducing these words in the order of difficulty according to empirical research.

It is perhaps not possible to write graded books without the basic linguistic research being available. Unless one can use a list of words tested for difficulty one cannot really know whether the words introduced by the writer in the first lesson of the first book are more difficult than those used in Lesson 8 of Book Three. There is no way of controlling this variable between books or between lessons in the book if graded word lists are not available. It is not even always known how many words should be covered in one graded reader. The only available option then is not to introduce too many words in lessons/ per page in the books. Here again we are on slippery ground. But then life involves working with insufficient data. As long as we know what we are doing and understand the limitations of our work it is all right. There will be scope for doing better.

It is not surprising therefore that sometimes it becomes difficult for the literacy worker to distinguish between the *graded books* and *follow-up books*. The distinction is conceptual. In practical terms one book that may be graded for one series of materials may be picked up for use as a follow-up book in another project or programme if the language used is the same. Conceptually, however, the distinction is rather important and should be made.

Four different levels of reading materials can be indicated.

Level 1: Community Sources of Printed Materials

All communities have some sources of information in print. These are the newspapers they publish, the periodicals they bring out, and books on history, politics, and fiction. A new-literate adult coming out of the literacy class could not read the material. The result was that through disuse of his literacy skills he lost them in a few years. Adult educators, therefore, understood the need of writing special materials for adults that adults could cope with, and providing them experiences to make the shift to community sources. These materials were given the name of follow-up materials.

Level 2: Follow-up Materials

These materials are specially written for adults with *readability* controls, readability being determined jointly by the number of words introduced, the level of concepts discussed, the length of sentences and other syntactical considerations. Subject-matter puts no limitation for follow-up materials—anything that is worth reading is worth reading by adults as part of the follow-up programme. In most follow-up materials programmes, however, socially significant topics are given precedence over other subject-matter.

Level 3: Graded Books

This has already been discussed in the preceding paragraphs.

Level 4: Primers

This again has been discussed elsewhere.

We may make here a point on the content of graded books. The content of graded books has to be related to the primer. This is important when graded material is to follow up on a functional literacy primer. However, content must soon be diversified. Small chapters on various topics related to occupational and social and cultural themes should be introduced.

Letter Books and Account Books

After adults have learnt to write they must be given an opportunity to apply their skills in a real-life situation. This will be helped if adults are taught to write letters and to address them properly. A special book of letters for various occasions written in a language that the adults can cope with and understand should be developed and used with adult classes.

The same applies to the need of using an accounts book for adults to help them use their mathematical skills in real-life situations.

Follow-up Books

Literacy workers often neglect a follow-up materials programme even when convinced about its usefulness. It is not considered urgent *now* and later it is often too late. As a rule a follow-up materials programme should be taken in hand as soon as other reading materials are planned.

Only a few points need to be made here about a useful follow-up materials programme since many references are available for those wanting to develop programmes for follow-up materials.[27]

1. The clientele of follow-up materials should be broadly conceived. It is not only the graduates of the literacy classes for whom the follow-up materials are written. They are *for the new reading public* which includes all the seventh-grade and elementary school leavers in a country.

2. Special efforts should be made to give due consideration to the scientific part of the human culture. Few available programmes seem to recognize that science and technology have become part of life even in the so-called remote parts of the underdeveloped world.

3. Where there are no writers available for writing follow-up materials, training facilities should be provided to produce, first, the writers, and then the written materials. There

[27]*Simple Reading Materials for Adults: Its Preparation and Use,* Paris: Unesco, 1963. Also H. S. Bhola, "Books for the New Reading Public," *Lekhak,* Vol. IV, No. 2, July-September, 1967 and H. S. Bhola, "Do You Plan Your Books Before You Write Them ?" *Lekhak,* Vol. IV, No. 3, October-December, 1967. Both issues of *Lekhak* are available from Literacy House, Lucknow, India.

are, of course, some educated people in all cultures. Suitable writers' workshops can be organized to train them for writing special materials for new-literate adults. The experience of Literacy House, Lucknow in the area of writers' workshops is both long and instructive.[25] It tells us that it can be done.

Newspapers for Adults

The special newspaper written for adults in literacy classes has the same functional status as the follow-up materials. The new-literate adult who comes out of literacy classes cannot go directly on to the daily newspaper from the state or national capital. This is so for two reasons: he is not attuned to the literate environment around him, that is, he is not habituated to looking up the newspaper; and if by any chance he stumbles over a newspaper from the town he cannot read and understand it.

Both to get him into the habit of reading a newspaper and to give him a newspaper that he understands, special newspapers must be produced within functional literacy programmes. These newspapers have the additional merit of creating a literacy environment where none existed before. Their role in building a literacy environment should not be lost sight of.

Like the follow-up materials the special adult newspaper should be written with a limited vocabulary. In fact there should be even stricter vocabulary control so that adults still in literacy classes can read it. The newspaper should not wait until the classes have learnt to 'read' because the teacher, in the first few months, should read the newspaper to the class. Again, the special newspaper should not just be an easier version of the newspaper from the city. It should be the adults' own newspaper reporting on events related to their own life, from their own immediate environment. The coverage of the newspaper should expand as interests of adults in classes expand.

Bringing out a special newspaper, however small, requires much effort. To make it related with the environments of the people there

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[25]See Bhola, *Op. Cit.* Also H. S. Bhola, "Training of Writers: A Syllabus for Literacy House Writers' Workshop," Mass Communication and Training Department, Literacy House, Lucknow, 1967 (Mimeographed).

has to be some local news-gathering which is by no means easy. Again, production and distribution present difficulties in communities where no postal system may exist and where modes of communication may be few and far between. Therefore, a daily newspaper for such adult groups would be day-dreaming, a weekly would be enviable, but a monthly news-sheet would be the least that a literacy programme should do.

The communities that do not read newspapers or even see one rarely do not produce newspaper editors and correspondents. For some time in the beginning the project staff will have to issue the newspaper themselves. But shift of responsibility and facilities to the locality must be planned from the very beginning. This does not necessarily mean a newspaper written and distributed and edited by the adults in the community (though if that happens it would be great) but it does mean that the newspaper is produced by the local functionaries within the area of field work.

Related with the above is the question of production standards. Some literacy workers, once they hear the word newspaper, think in terms of the city newspaper or at least the tabloid. They look at the cyclostyled sheets of the special newspaper for adults with contempt or at most as the necessary beginning stage. They want newsprint and a press that produces a newspaper that looks like the real thing. Production standards, however, are of the least consideration in such a special newspaper. It should be readable and it should be related to the adult group for whom it is written. Then we must make the best of the printing facilities we have. Even a handwritten cyclostyled sheet would do.

Pricing questions bother some workers. They say that unless people pay for what they get they do not respect it enough. There is some truth in it but such newspapers cannot be priced so high that the adult starts making comparisons with the prices for city newspapers. A subscription of a shilling for two years (24 issues) should be considered completely adequate.

III

AUDIO-VISUAL MATERIALS

Posters

Most literacy workers are 'verbalists.' They seem to be unaware of the possibilities of visual communication in functional literacy. Even when they are vaguely aware of the communication potential of these materials they think in the terms of introducing these materials *after* some time when the literacy programme has been established.

Many authoritative resources are available on the production and use of audio-visual materials.[29] Only a few points need to be made here, specially about posters. One, that posters can play an important part in literacy work and in general adult education work. Two, that while designing posters simplicity should be kept in mind—the tendency to put all one can on one poster should be avoided. Three, the design should not be *abstract* and the figures used should be such with which the prospective viewers can *identify*. In some developing countries of Africa there are not many local artists available and expatriate artists and experts have to be brought in. They project their own background both in design and expression. The woman carrying a child looks like a Mado'nna when she should have been carrying the baby on her back. The farmer is made to wear shorts when the local farmer is differently clad. The community worker and the teacher has hair that are rather straight and a complexion that is not as black as it should be—it is a shade white![30] Also, visual communication experts should make a rough and ready study of local visual image and then make visual aids.

Picture Albums

Picture albums can be gripping and they can teach. Commercial publishers are even making money out of it in Africa. Even though

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[29] See Edgar Dale, *Op. Cit.*

[30] I showed one such poster publshed by an African Government to one seventh-grade school leaver and asked him "Where do you think is this man from?" "I do not know," he answered. I persisted: "Make a guess." "I cannot," he said, "He probably is a half-caste."

'educational materials' could not be made as sensational as the commercial producers can make their story material the medium is worthy of experimentation.

Flash Card Sets

Flash card sets are, as the name suggests, set of cards that are flashed before a group for study. Generally they are in the $8'' \times 12''$ size and are used with small groups so that every one can sit around a circle and see the card as it is flashed before the group by the teacher.

Flash cards are used to present an idea that needs to be broken down in parts and explained sequentially. Pictures, drawings, posters, and written materials can be put on the flash cards. They are generally printed on heavyweight paper so that they can stand upright without warping. On the other side is printed a verbal commentary that the teacher can use for discussion or can just read. This makes the material self-contained, and village workers with very little training can use them effectively.

Flannelgraph Stories

Sometimes a literacy teacher may like to build an idea or a story before the learners or even with their help. A flannelgraph set—a series of cut-outs of pictures, words, diagrams, slogans—can be very interestingly used with a class. The learners can participate in building a story around these cut-outs displayed on the flannelboard. The pictorial material is backed by pieces of sandpaper so that it sticks easily on the flannelboard.

Demonstration Kits and Packaged Courses

Audio-visual aids and written materials can be planned together to teach a whole system of ideas and skills. Together they can be packaged into a course or a demonstration kit. For example, a packaged course on cooperative education may in one convenient kit include a guide to the teacher about the use of the kit and how the various instructional aids in the kit could be used together for a particular instructional objective or separately for fulfilling smaller instruc-

tional objectives. It may also include reading material both for the teacher and the learners. It may include some posters and charts on cooperative needs and cooperative structure in the area. It may include a set of flash cards or a filmstrip on managing cooperative unions or credit unions. It may include a recording of the President's speech on the need of cooperatives in the agricultural sector if any progress had to be made at all in the country. Lastly, a film may be included to show the working of a successful cooperative in the country, depicting their success story.

Community Resources

In the preceding discussion we have not included a discussion of the film, the radio and the press. They are important audio-visual aids but they are also important sources of community information and most communities today have some kind of services available in this area, however meagre. Adult educators especially those brought up in the verbal tradition act as if these important sources of communication do not exist.

Special effort should, therefore, be made to ensure that these community resources are used. Their use would not come about somehow! In fact, if adults are left to themselves to listen to the radio or see a film seldom are these media used for education. Entertainment takes over. The newspaper may rarely be touched.

It may be stated as a fairly correct generalization that the community resources of information can be used as educational tools only in a group situation. To use a film for educational purposes or to use the radio for instructional ends or to use the newspaper at all, the adult educator must create discussion groups with suitably trained monitors to conduct these discussion groups. It is not possible within the scope of this paper to include a discussion on how to create, run and maintain such discussion groups. The reader is referred to one of the many books available on the topic.

IV

MATERIALS FOR TEACHERS

There are two views on how much the teacher should be helped

with his job. One school believes in the minimum. Not only do they talk of the teacher's freedom but also of the unlikelihood of his using the materials given to him. Generally these objections come from people who have fuzzy ideas about teaching and training.

The other group says: Programme the teacher. By this they mean to say that we should anticipate every possible bit of the teacher behaviour and tell him to do each bit. This school, naturally, when writing a 50-page primer for the adult learners, also writes a 50-page teacher's guide. In a functional literacy programme that implements a new concept and where the primer assumes a fairly advanced vocational knowledge a detailed guidebook that helps both (a) on the linguistic, and (b) the vocational content of the primer seems essential.

Teachers' Newsletter

A rather useful item of materials for teachers would be a teachers' newsletter. Training, however adequate, is never complete. A well planned monthly or fortnightly newsletter can deal with instructional problems as they arise, provide the teachers with a forum for discussion, provide needed stimulation, and last but not least, give teachers the feeling of being part of the team.

Materials of instruction are the means through which a functional literacy project will be actualized. Materials would provide the confrontation between the learners and the teachers and change agents. Fortunately educational technology today has prepared educators well for this confrontation. Dreams can be realized, national destinies can be made.

H.S. Bhola was until recently Literacy and Adult Education Trainer, Unesco/UNDP/Tanzania Work-Oriented Adult Literacy Pilot Project, Lake Regions (Post Box 1141, Mwanza), Tanzania, and is now Associate Professor, School of Education, Indiana University, Bloomington, Indiana, USA.

How to Accomplish School Reform[1]

K. G. Saiyidain

*The author argues that school reform is concern-
ed both with the deeper purposes of education
as well as its means, and is not a mere tinkering
with curricula, tools and techniques. It should
be envisaged as a continuous and coherent pro-
cess involving a multipurpose approach towards
the total education of personality. The author
then discusses the role of the teacher, the ad-
ministrator, the community, and experimental
institutions in originating and implementing re-
form, and pleads for an education informed by
the values of humanism, love and compassion.*

It is, indeed, a great pleasure and privilege for me to be invited
to address this imaginatively designed World Conference on Education.
I do not know why this honour has been bestowed on me and doubt
whether I can at all come up to your expectations. However, all that
is possible in a situation like this is to try and do one's best. I am
grateful to the conference for this invitation, which affords me an
opportunity to meet so many distinguished educationists.

I may say, at the outset, that I do not propose to use difficult im-
pressive, technical terms in my speech. This is not merely an attempt
to cover up possible lack of scholarship but is also meant to ensure
that I can make quite clear what I have to say. I belong to the rather
old-fashioned school of thought which believes that intelligibility is a

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necessary function of speech and lucidity is desirable in writing—not so much for the sake of the specialists, whom one may be addressing at the moment, but for others who are not specialists but have a general interest in educational problems. As teachers, administrators, researchers, policy makers, we will do well to remember that education is basically of interest to everyone—students, teachers, parents, citizens, civil servants, businessmen, politicians, priests, and others. It derives its purposes and its social significance, its content and methods from this wide variety of social groups and it cannot strike healthy roots in the soil unless it becomes responsive, within reason, to the interests and expectations of all of them. This capacity to communicate lucidly, which is important for all of us, is of special significance for teachers who have to put across knowledge and ideas to their students all the time.

The theme of this plenary session, "How to accomplish school reform", has a place of crucial significance in this conference. When we have analysed the kind of man that we wish to educate and the kind of world which will be a worthy habitation for him; when we have studied the patterns of education round the globe and considered whether or not our present schools are able to meet the new challenges, and how they can be adjusted to new social situations, and how the physical and social environment can become an active ally in the pursuit of worth-while goals—when we have done all this, we will have to face, as educators, the billion dollar question: How can we build a bridge between what-is and what-might-be ? How can reform be actually introduced in school systems, which will enable us, within a reasonable period of time, to implement the decisions and conclusions that we may reach in the various other plenary sessions ? And, since the conditions and priorities in various parts of the world are so different it is not possible, in a conference like this, to lay down an itemized blueprint of specific reforms, what are the important principles that should guide us in selecting points of significance in this programme ? Specific reforms, which are integrally related to each individual school situation, must, of course, remain primarily the concern of the faculty, with help from other relevant sources.

I need not take your time in analysing and clarifying the various terms that are used in discussing the process of reform. Partly be-

cause, to my way of thinking, far too much time and attention are given to such analysis—just sharpening our instruments, as it were, instead of attacking the problem. There are few teachers who do not know broadly what terms like 'reform', 'change', 'innovation', 'curriculum development', 'programmed learning', 'new technology', etc., mean. They are all meant to symbolize the kind of changes which will enable the schools and teachers to achieve their objectives more fully and adequately. You may introduce change—by whatever name you call it—and it may not make any impact on the quality of education. On the other hand, a change in the curriculum or methods of teaching or administration might open new windows in the mind and heart of students, might make the work of school teachers more active and joyous, or might reduce the headaches of the administrators. A change by itself is not necessarily for the better, but many teachers try to salve their conscience by making some alterations in their practices in the hope that they will prove the beginning of a fruitful programme of reform. We have tried many new educational experiments in India —as others have done in their countries—only to find that the net result has often been rather disappointing. We must discover the reasons responsible for such failure.

What does school reform include ? When it fails, is it a failure of implementation or of imagination and vision ? One would be inclined to say that it is both, and the respective importance of the two would depend on *what* we are trying to achieve through it. If it is a change in the curriculum and methods, with which we are primarily concerned, it is the mechanics of implementation that are at fault. If, on the other hand, we are interested more in the re-interpretation of the deeper purposes of education and we fail to bring it about, then obviously it is failure of our vision. But any educator, with a proper understanding of his role, should be concerned with the whole process—neither mere instruction, nor mere training of the mind but the education of the child's *whole* personality, which would cover curricula, methods, understanding of values and purposes and the vital play of social institutions on the school. The school must become, in this enlarged context, not merely the transmitter of the existing pattern or patterns of culture but also in a modest way, a creator of new values and a new pattern of culture. It should take upon itself the difficult

but essential function of appraising existing culture, strengthening trends that are life-giving and fighting against forces which repress freedom and the urges of humanism. I am convinced that purposes are of basic importance in education and they must be defined with care, imagination and a spirit of humanism—that is, not with reference to padagogical considerations of a narrow, technical nature or in a kind of academic vacuum, but with reference to the needs and creative aspirations of life, both individual and of the community.

All this cannot be achieved at once. School reform should, therefore, be envisaged as a continuous and coherent process which involves a multipurpose approach towards the total education of personality. It would be necessary, of course, to pick out priorities for action, at particular points of time and in relation to the special circumstances of the school as a matter of tactics. But the teachers should have before them, as a body, a total picture of what they are trying to achieve. It is the comprehensiveness of the envisaged objective that is important, not the simultaneous implementation of the whole programme in view. Sometimes, it happens that one candle lights another and the educational mansion is eventually lighted up as a whole. I remember, for instance, a large high school in Bombay—large according to Indian standards—which I was invited to visit when I was Educational Adviser to the Bombay Government. A distinctive feature of the school, I was told, was its insistence on a high standard of neatness in all written work, from the lowest form to the highest. After looking at hundreds of exercise books in all subjects, I found that the claim was fully justified. This, by itself, was not a remarkable achievement—the remarkable thing was the 'carry over' of this successful tradition in many other fields of work. I do not want to discuss here the moot psychological question whether 'transfer of training' does actually take place. I am only concerned to point out that, as a result of this distinctive feature, students acquired a new sense of pride in their school; their sense of neatness and system in work spread into other activities and the school gradually acquired the reputation of being one of the very good schools in the city. I asked the Principal how they managed to instil this attitude to work in the new pupils admitted. She said, "This has been the least of our problems. Once you have established a tradition firmly, a large

majority of the newcomers easily fall into it. If some of them do not do so, the public opinion of the students is able to bring them into conformity without any 'official' pressure being exercised."

Obviously, the starting point for any effective improvement in schools must be an outstanding individual assisted by a group—even a small one—of committed and dedicated teachers, willing to work cooperatively for a commonly cherished goal. The kingpin in this process is often a dynamic and imaginative head of the institution who can provide inspiring leadership for his colleagues and knit them into a genuine team. How are such teachers, you may ask, to become available for pioneering, trail-blazing experiments? In this country, where hundreds of fascinating experiments have been tried out, you should know better than I how to mobilize the best talent for the purpose. I can only point out .that there is no *single,* magical recipe for it Sometimes it is a single individual of drive and vision—like Tagore or Zakir Husain in our country—who provides the attraction. Sometimes, it is a dedicated group of progressive teachers who initiate the experiment and draw others into it. However, it would be unfair and unreasonable to expect that, even the best of teachers wil continue to work in a pioneering experiment indefinitely, unless the local or national educational authorities provide reasonably good conditions of work for them and society shows some appreciation of what they are doing. I confess, I have come across a few such persons—both in my country and abroad—who have done very fine, creative work without due recognition, and the joy of it has carried them over the discouraging obstacles till they have broken their way into success and recognition. But these have been exceptions and I would be reluctant to generalize on the basis of their performance. The provision of *congenial conditions* of work must be regarded as a *sine qua non* of reform.

In many countries, where conditions of scarcity prevail, teachers often work in remote rural areas where there are few stimulating contacts, official or non-official, no books, no educational journals, little audio-visual equipment, and the environing community is largely uneducated. The intellectual depression and isolation, which is the normal lot of such teachers, tends to make even the most promising of them lose their interest, and the rest become part of a lifeless routine. Under such conditions, it becomes very difficult to initiate any crea-

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tive experiment. And yet, if they were left out, it would mean that experimentation would be confined to large cities and centres of urban population only. The business of the imaginative educational leader is to leaven the whole mass in course of time, and not to concentrate entirely on institutions and regions which have a favourable climate for the purpose. My stress is on 'entirely,' for I do recognize that, to begin with, he may have to try new ideas and methods where they have a good chance of striking roots in the soil. But the other areas cannot be ignored. They have to be assisted so that they may also become favourable soil for the purpose. To achieve this object, we have tried some measures in India—with limited success, I must confess—for example, improving the efficiency of the teacher training colleges so as to equip the teachers better professionally for their work sending specially prepared literature in the form of brochures, folders, educational journals, etc., to schools in such areas in order to awaken and maintain the teachers' interest in educational change, to arrange visits by good teachers and educationists from other schools who may come into intimate personal contact with them. It may thus be possible to break through their apathy and isolation and let the wavelength of new ideas take the comparatively backward schools within its purview.

Educational reform, however, is an uphill task. It entails many disappointments, failures and frustrations and, therefore, it is necessary to devise ways and means of keeping up the morale of those working in different kinds of schools—where the educational atmosphere is congenial and where it is not, where the community is cooperative and where it may be indifferent or even hostile. We have to provide imaginative leadership, and administrators and supervisors with sympathy and vision, who will visit them frequently, encourage them to discuss their difficulties, suggest to them readings which will both instruct and inspire and thus break down loneliness wherever it exists. In many of the countries in our part of the world, this is a very serious hindrance, particularly in rural areas, in the professional growth of teachers. Similarly, it is necessary to ensure the involvement of the community in any serious programme of school reform. There was a time when teachers and educational authorities could afford to regard themselves as the sole arbiters of educational

policy and measures, but they must now take into account both the adults and the youth of the community. The need for this involvement arises because all educational reform must ultimately rest on a careful and well-balanced assessment of the educational needs and social aspirations of society. It cannot be engineered, as I said, in a social vacuum.

These needs, broadly speaking, are of two kinds. There are some needs which are basic to man as man, which stem from the very roots of human nature, from man's proper understanding of what the dignity of man implies, from his common urges, aspirations, feelings and passions. Whether one lives in America or Russia or China or India or Arabia or Chile or New Zealand, there are many things which people share and which education must take into account. There are other needs which are closely related to particular cultural or political systems or geographical areas. A comprehensive analysis and understanding of these dual needs is necessary in order to formulate suitable curricula and syllabuses for any particular society. It may be that, in the construction of the curriculum or the syllabus, the specialized needs of a country may come first in point of *time* but, as I see it, priority in *significant* must be given to the *common* needs and aspirations of man as a citizen of the world. To take a small illustrative example: Hundreds of millions of children all over the globe are taught their geography upside down—they are shown as residents of a village or a city, then of a particular district, of a state or province, of a country and, on the periphery, is the world as a fact of somewhat minor significance ? This was *never* a sensible approach; in the world today, with its rapid means of communication and interplanetary travel, it has become a meaningless approach. Why should not all our students realize, from the earliest stage of their education, that they are citizens of the world and only, thereafter, the citizens of country, the residents of a state or a district, or a village, so that their loyalties may be rightly oriented from the outset ?

In the reconstruction of the curriculum a great deal of work has been going on all over the world. All that one can do here is to lay down general principles of policy to guide the process. This has, to my way of thinking, two components. First, what can we do to streamline the traditional subjects, coordinate them with one another and

with life, so that they may be quickened into life and not remain what they have been over the centuries—passive stockpiles of information, some useful, a good deal outdated ? Perhaps many of the progressive, pioneering educators assembled here may not quite agree with this assessment of the present situation of the school curricula. But persons like me, who have worked at the ground level and seen the conditions that prevail, will agree that this is true of a majority of schools all over the world. The other component derives from the fact that our world is changing very, very fast; new knowledge is being created at a pace that staggers the imagination. My scientist friends tell me that science more than doubles in a decade. New technology is being developed continuously, creating new problems not only in its own field but also in social and economic relationships. This is, of course, happening at different speeds in different parts of the world but, slow or fast, the movement *is* in that direction. The crucial point of this unprecedented change, from the educational point of view, lies in the creation of many changed socio-economic relationships and the new problems that arise out of them. If the school ignores these live problems and school reform is not concerned with them, it will cease to have relevance to the world in which we are living. Thus technological progress in the more advanced countries has not only increased their material resources enormously and given man infinitely greater power over Nature; it has also opened out bottomless pits for wasting it destructively. The most obvious example of this, of course, is the criminal and suicidal race in nuclear armaments. This, added to uncontrolled unplanned industrialization, is making the human environment more and more uncongenial and harmful to the life of man— through the pollution of air and water, which, in some countries, has now almost passed beyond the limits of human tolerance, through the growth of soulless metropolis and cosmopolis of enormous size, in which millions of nameless, faceless human beings congregate, who have forgotten what normal community life meant in the past and who have little contact with Nature from which all healthy life springs; through the depletion of the countryside, which is being gradually sucked in by the growing urban menace. These and many other pressures and unhealthy factors, operating in modern life, have raised new problems of frustration, psychological tension, nervous breakdowns amongst

the youths and the adults of the community, accompanied by a pitiable desire to seek unworthy forms of escape. There is, consequently, a tendency now to reject the good as well as the bad features of modern civilization. All these problems clamour, often unheard, for the attention of parents, educationists and educational administrators. To the extent possible, they should be worked into the curriculum so that the new generation, emerging out of schools and colleges, will not grow up ignorant of what awaits them in the world of tomorrow or the day after, and they will be in a position to strengthen healthy public opinion on these issues. This will obviously involve throwing out of the curriculum much old cargo and replacing it with new one relevant to the present needs. We can only do so if we carefully examine what we can leave out without serious detriment and what we should include in order to adjust the students creatively to their environment.

"Many interesting ideas and suggestions have been thrown out in this connection by American educationists: the need for what has been called 'strategic simplification' in order to meet the situation created by the recent 'explosion of knowledge' and the growing complexity of life; the need for selectivity and the establishment of priorities; a recognition that all knowledge is not really worthwhile from the point of view of the child in school, that much of it can be eliminated without any damage to education if we could overcome traditionalism and resist inertia, that the approach in the reconstruction of the curriculum should be creative, illumined by insight into purpose, and not merely additive, just adding new material to placate pressure groups or enthusiastic specialists or transient public whims."[2] But that is not all. There is no earthly way in which all, or even the most salient features, of the new knowledge in its most elementary form, could be sneaked into the curriculum of students. The emphasis has, therefore, to shift from mere accumulation of knowledge against a rainy examination day, to learning how to acquire knowledge as it becomes necessary, from how to stuff the memory with information to how to train and develop intelligence and use it for interpreting knowledge. The cultivation of a lively curiosity, the eagerness to learn, the mind train-

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[2]K.G. Saiyidain, *The Faith of an Educationist,* Asia Publishing House, Bombay, 1965.

ed as a precision instrument are thus seen to be much more important than quantitative learning, and method as more important than content—particularly if it consists of passive information and 'inert' ideas. So one of the most important functions of good teachers, working to bring about school reforms, is to raise questions, to set the mind wondering, to create opportunities in which the students may use the knowledge acquired for solving their own as well as the problems of others.

In the educational systems of many countries including the U.S.A., and India, there is often a confusion of priorities in the sense that means are given more importance than ends. No school reform, that is wedded to the shapening of tools, the improvement of methods and techniques, the devising of new teaching aids and apparatus, to the neglect of the basic objectives, in whose service these tools are to be used, is really worth while. While I recognize the importance of the controversy over methods and curricula which goes on in all countries, I am convinced that purposes are of basic importance in education and, unless they are defined with care and imagination and in a spirit of humanism, the mere improvement of means cannot bring about a healthy, far-reaching revolution. And they should be defined not with reference to pedagogical considerations of a technical nature or in a kind of academic vacuum, but with reference to the needs and creative aspirations of life—life which includes both the individual and the community. They should be viewed in the light of the kind of individual we want to educate and the kind of society we wish to bring into being. If I may be permitted to say so, I have found in many educationally progressive and affluent centuries, too much of a tendency to concentrate on means. Not that their best educational thinkers are unconcerned about the basic objectives and purposes but, when it comes to the devising of measures for actual school reform, the emphasis shifts to the sharpening of tools. It is idle to expect that, by doing with greater technical skill and expertise what we have been doing in the past, however inconsequential or of marginal significance, any fundamental reforms could be brought about ! Do not the requirements of efficiency, competitive-success-at-any-price, developing the toughness necessary for the purpose and the gospel of what a person owes to the 'first person singular' receive greater attention than cultivating humanism, compassion, self-restraint, self-criticism and the

gentler virtues that have been preached and practised by many of the great saints and sages, thinkers and philosophers, poets and writers and men and women of God generally, throughout the course of history? Unless we define our educational objectives more intelligently, more relevantly and in more humane and universal terms and relate our means and techniques to them integrally, all our wonderful machines and streamlined methods will be of little value. It is one of America's great humanists, Norman Cousins, who has said: "Education—the good education, that is—can (and should) help you to move out beyond the narrow confines of the ego, so that you can identify yourself sympathetically—no, the word is not strong enough—identify yourself *compassionately* with the main stream of humanity."

But this cannot be achieved, as I have hinted, by merely tinkering with the curriculum or the methods of teaching, by introducing from time to time more science or new mathematics or more foreign languages in response to some immediate needs. Or even by making radical changes in them, unless they are intelligently related to the longer-range objectives of education.

I have stressed this point in order to make it clear that, for me, school reform has no limited, purely technical connotation. Subject to this proviso, I recognize the importance of developing new techniques for education at all levels—activity methods of teaching and learning, improved audio-visual techniques, new devices of communication like Radio, T.V., films, use of computors, new language learning devices, new ways of designing curricula so as to break down artificial barriers between various school subjects and show their relevance and relationship to contemporary life and the urges struggling to emerge out of it. One advantage of some of these devices is that they make it possible to utilize outstanding teachers—whose number is, alas, limited in all countries—for a much larger student audience than has been traditionally possible, and thus to improve both the quality of teaching and educational productivity. All the potentialities of these media have not been fully explored and, whenever financial and other requisite facilities are available, it would be necessary to make fuller and more effective use of them.

It has, however, to be remembered that the development of these media is at different stages in the various countries of the world. It

depends not only on the countries, economic position but is also relat-
ed to their cultural and social conditions, the stage of their educational
development and the part that machines play in their general economy.
In some countries, it will have to be done on a very economic basis,
minimizing the use of mechanical and electrically run devices and
using local resources as much as possible. In rich and educationally
advanced countries, these new devices have made considerable head-
way and it is perhaps not necessary to stress here the importance of
their use. However, I would like respectfully to suggest that, even if
some countries have the resources to achieve the point of saturation,
there would be wisdom in *not* trying to do so. It is possible to make
the educational machinery—how shall I put it?—so machine ridden
that there will be little scope for initiative and resourcefulness on the
part of teachers, and the whole educational process will become a pre-
planned, rigidly directed, unchallenging routine. In our economically
underdeveloped region, we have found that, while lack of resources is
a great handicap in doing many things that we want to do, there is
also a certain thrill and creative joy in working within the limitation
of a scarcity economy and achieving worth-while results, often using
human ingenuity and resourcefulness to make do in place of mecha-
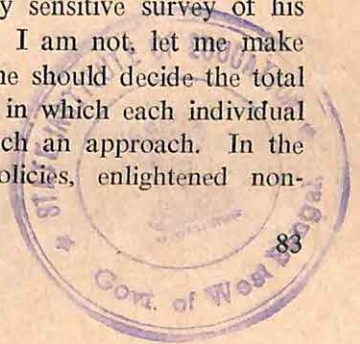nical devices and large financial resources.

We have to bear another caution in mind in the use of the various
kinds of teaching machines and devices. In our preoccupation with
them, we must remember that a most important aspect of our work
is to make a deeper study of the psychology of child-learning—that
is, what happens when, in a classroom situation, teachers and students
actually confront one another. Teaching apparatus, simple or sophis-
ticated, may help but we have to bear in mind that real education is
what goes on between two persons—contact of a mind with a mind,
of a spirit with a spirit. This psychological understanding is "an essen-
tial component of any strategy designed to raise performance level in
education. Indeed, without a better knowledge of this process, an at-
tempt to introduce new technological systems could have a dehuman-
izing effect on education." This useful warning has been given to the
modern generation of teachers in the Fifth Annual Review of the Eco-
nomic Council of Canada.

In many countries of the East, there has been traditionally an

intimate, personal relationship of great significance betwen the Guru, i.e., the teacher and his students, whether one or many. This was in the past often a one-to-one relationship in which the student would become a member of the Guru's family, live with him for several years, serve him with devotion, acquire knowledge at his feet and receive education not only from books and through formal lessons but from the impact of the Guru's personality, his sense of values, his philosophy of life. This practice is, of course, not possible now and we, in the East, may have overdone it. But, in a process of educational improvement, we shall ignore its real significance at our peril. A good deal of the present student unrest in many countries, so far as it is due to academic causes, stems from a growing mechanization of the teacher-student relationship in the schools, the colleges and the universities. When actual teaching is relegated to junior assistants and lectures and the professors and other senior members of the faculty remain largely preoccupied with their research and research publications —the students often remain for them a nameless, faceless crowd. This not only undermines the personal influence which the teachers could have exercised over them, but also provides some justification for their protest movements. A 'depersonalization' of relationship is bad in *all* human associations; in education, it is particularly out of place.

In an appraisal of what a healthy society requires, we must learn to distinguish between what it *wants* and what it *needs*. An individual, a group or a society may want many things—bigger cars, more cigarettes, more cosmetics, more drugs, more armaments—and, therefore, call for the training of the younger generation in producing these articles efficiently. Now, it is *not* our business as teachers to accept necessarily what the customer decides he wants. If we were purveyors of ordinary consumer goods, there might be some justification for letting the consumer decide that point. But education does *not* belong to that category and it cannot be left to the uneducated whim of Everyman ! We must make a comprehensive and socially sensitive survey of his real *needs* and adjust education accordingly. I am not, let me make it clear, advocating that an authoritarian regime should decide the total pattern of education and the particular niche in which each individual is to be fitted. I am entirely opposed to such an approach. In the formulation of educational objectives and policies, enlightened non-

official public opinion as well as the government should both be involved and there should be an open public discussion of the issues. At the implementation level, there is need for close cooperation and consultation between the teachers and the local community.

In order to initiate a well-thought-out, long-range programme of school reform, it is necessary to work out designs of pioneering educational experiments and organize experimental institutions where new approaches to curricula, syllabi and methods of teaching may be tried out—schools like the Dewey School in Chicago, the Tagore School in Bengal, the Zakir Husain School at the Jamia Millia in Delhi, Vasconcello's New School in Belgium, and the Oundle Public School in England. I have named a few schools at random and there are many more pioneering schools in most countries of the world. One of the most difficult things in improving schools is to fight against the rigid traditionalism, the *status quo* mind, the timid adherence to routine which characterizes the normal run of teachers all over the world. They resist, they are conditioned to resist, change and this is true in spite of all that one hears of the changes coming over the educational systems. In the U.S., when the 8-year study experiment was being tried out and teachers were told that they were free to work out new ideas, many of them frankly confessed, at least in the early stages, that they were 'frightened of freedom'. In my own country, desirable changes often remain confined mainly to certain progressive schools, while the majority bow their heads, as it were before the storm and "let the thundering legions past"! Even of a great university like Cambridge, it has been said, by one of its distinguished teachers, that it takes about 25 years for any important measure of reform to go through the various consultative committees and authorities concerned and by that time it becomes out of date and it is time to think of another! This may be an epigrammatic way of putting it but it does show that changes do not come about easily in the educational world.

When I speak of changes, I am not, incidentally, referring to trivial changes but those which are significant and require a re-patterning of teachers' basic attitudes and the cultivation of new insights on their part. So far as superficial changes are concerned, any self-complacent administrator can issue an order and take the unction to his soul that the changes prescribed have been carried out, if the tea-

chers go through certain motion of doing things. Further, the teaching faculty should not be lulled into complacency just by introducing certain changes in the school programme. It is *not* the change that is important but its reaction on the children and the youth. Has it succeeded in giving them a clearer view of the world in which they are living, in learning better ways of dealing with new situations, academic and social, that they may come across, in integrating their knowledge into their life ? The teachers should be sensitively observant of the *effect* of the changes on the students' mind and personality and, as a faculty, they should work to develop ways of measuring and assessing their impact. Otherwise, the change may deceive not only the administrator, but even the teachers themselves, into believing that its purpose has been achieved. It is unwise to imagine that anything really worth while can be accomplished either easily or quickly. In effecting educational reform, teachers have to be actively involved at all stages—planning at the macro and micro level, assessing the draft plans, working out effective techniques of work and, finally, in the actual process of implementation. They should not be treated only as part of the implementing machinery. This does not mean that *every* teacher is capable of making a valuable contribution at all these stages but it will be good for them to have the feeling that they are, or can become, active partners in the process, that they have the requisite opportunity, if they will care to make use of it.

What would be the right methodology and approach to reform in the educational system ? As I see it there are two ways of initiating it. One can either impose such reform from above or outside—imposition by government, by political groups, by the education department authorities, by the parents, or even by the students, the new phenomenon that has developed recently. This is by no means the best approach because if I may so put it, its centre of gravity falls outside the base of support. The motivation is not the teacher's who is the main agent in the process but of various other social groups. They are all, of course, involved in the process but naturally they have their own special purposes to promote. We cannot rule out this approach altogether; it has its limited usefulness, particularly in special circumstances; for instance, when the teaching faculty is passive or indifferent, or there are important matters of policy which require a certain mea-

sure of national consensus which can only be arranged under the auspices of the government, or the pressure of the local community is needed to make the teachers conscious of its special needs. Provided the teachers gradually acquire the capacity to welcome and actively support all healthy currents of thought and opinion coming from outside and also the courage to resist whatever is obscurantist or narrow-minded in them. I know this is a difficult condition to impose but without courageous and discerning teachers, no worth-while changes can be introduced. If we think such teachers will not be forthcoming at all, we might as well give up the effort!

The alternative approach is to make the teachers the starting point of reform, and through training, refresher courses, stimulating contacts and participation in experiments enthuse them with new ideas and practices and improve their competence and understanding of educational purposes. In this case, the results are likely to be more abiding and rewarding. Through such a process reform strikes its roots deep in the educational soil and does not need constant goading from outside. It becomes self-directed.

Does that mean that these other agencies to which I have referred have no important role to play? No, they have a vital role but it is mainly concerned with the creation of favourable conditions in which teachers can work with maximum efficiency. The supervisors and administrators must provide for proper *freedom, creativity* and *initiative;* the department should help schools to organize experiments to arrange effective *clearing houses* for information and ideas. Again, all of them can show in their respective ways due *appreciation* of good work wherever it is done. An easy enough thing to do in all conscience but I have often found educational authorities niggardly even in this matter! A good man and good worker is God's greatest gift. To honour him is to honour ourselves, our common humanity. And there are many ways in which befitting public recognition can be accorded. In India, for instance, every year the President of the Republic gives national awards to one hundred outstanding teachers from primary and secondary schools. Finally, it is the joint responsibility of all these agencies to provide necessary funds for the purpose and see to it that no really good work is allowed to languish or suffer for want of funds. While educational authorities all over the world

complain that they do not have as much resources as they need, afflu-
ent nations can hardly realize how in many countries with scarcity eco-
nomies education has to subsist on a shoestring budget. Money is
essential and if this is recognized it can be spared from other com-
paratively less important or wasteful heads of expenditure. *Provided*
we do not forget that it cannot by itself improve education. In the
final analysis, it is the men and women of ability, imagination, good-
will and social conscience who can do so.

When we have passed through the stage of trying out new and
creative methods of education successfully in selected schools, the next
problem will be to put them across to hundreds of thousands of schools
and give millions of children their benefit. Here the pressure of quan-
tity is always apt to defeat quality and, in the process of transmission,
the new approaches become excessively watered down. However,
there are some precautions which may help in the successful transfer of
experience from the selected schools. First, arrangements should be
made for the regular visits of teachers from ordinary schools to these
schools to observe their functioning, to work in cooperation with their
teachers, prepare necessary curricular and illustrative material, and
study methods of more lively presentation of significant life-related
contents. Occasionally, gifted teachers from these schools should
visit ordinary schools in their neighbourhood and give the benefit of
their experience and new insights to their colleagues. We tried out, in
India, with Ford Foundation assistance a fairly well articulated scheme
under which the primary and secondary teachers training colleges
were made responsible for the academic supervision and betterment of
schools in their neighbourhood. They were given some additional
staff and library and conveyance facilities for the purpose, and pro-
grammes were drawn up which made a two-way traffic possible bet-
ween them. The success of the experiment varied from area to area,
depending on the quality of the college faculty and the response of the
schools but, on the whole, it was a worth-while venture. At this stage,
it is necessary, I repeat, to make sure that there is active cooperation
and understanding amongst the students, the parents, the teachers, the
supervisors and the administrators so that they may all pull in the same
direction and not work at cross-purposes, Great patience, goodwill,
devotion, enthusiasm and wisdom are needed to overcome the obsta-

cles that will necessarily come in the way. The schools should also have the freedom, if they can exercise it, to adjust the experiment to their own special conditions, instead of following the given pattern mechanically. Honest differences of opinion should never be ruled out nor the initiative of the men on the spot, curtailed. What is, however, inexcusable is *pretending* to believe in an experiment or a method or idea and not *really* believing in it. Gandhi once said in the socio-political context: "The highest honour that my friends can do me is to enforce in their life the programme that I stand for or to *resist me to their utmost if they do not believe in it*." This cannot, of course, be applied rigidly over the whole area of education, where there is a definite place for system, and a free-for-all situation may conceivably lead to educational chaos. But Gandhi's remark enshrines a truth which it would be unwise to ignore. There must be room in all significant creative activity for dissent and a readiness on the part of the majority or the concerned authorities to give it due consideration. In many of the countries, with which I happen to be familiar, there is too much of the strait-jacket approach which kills creativity and restricts freedom. And no radical school reform is possible if teachers are denied creativity and freedom. Many more teachers are capable of growing into fine teachers, if given the necessary conditions of work than the administrators are usually prepared to recognize. It is undesirable to have any prison walls in the educational system which only persons of exceptional vision—a Dewey, a Tagore or a Homer Lane—are sometimes able to break through. We should have a built-in possibility of *every* teacher, with the necessary ability and enthusiasm, being able to make a contribution.

This brings me to the last point which I wish to place before you. School reform to my thinking, is something even more than a a matter of designing a lively and meaningful curriculum, of working out new methods of teaching and developing an alert and sensitive mind. It also involves the question of cultivating, in the students, attitudes and ideals which we consider worthy and whose significance they can appreciate. This is not merely the age-old question of training the intellect as well as character—that has always been with us and is part of the warp and woof of all education. I am thinking of the *special* qualities necessary here and now in order to ensure the sur-

vival of man with dignity in his new and challenging and heart-breaking environment. How I shall define and specify these qualities? Perhaps I can do so best by saying that they belong to the values—area of love, with which are associated charity, compassion, social sensitivity, urge for peace. Without this supreme quality of love, life can have no savour, man can build no worth-while culture and the teacher has no great purpose to work for. All true progress, a French writer has remarked, is progress in charity, everything else being secondary to it. This is precisely the quality which is in short supply in the world today—in spite of the impressive advances that we have made in the social services and, to some extent, in the field of international assistance.

Can the school make any contribution to this situation? Perhaps many of the hard headed, worldly wise, cash-and-carry minded teachers and administrators may say: 'No, what has the school got to do with it?' I would submit, in all humility, that a school system which does not concern itself with the question of right attitudes and values, and school reform which passes it by, are nothing but an exercise in futility or worse, and those, who disregard this basic question, do not really know what they are talking about. School reform must aim at bringing about a reorientation of teachers' minds, emotions and values, and, through them, produce a revolution in the thinking and feeling of students so that they learn to value creative happiness over possessive happiness, cooperation above competitive success, service above exploitation; so that they learn to realize that all men are brothers and no human being should be a stranger to another, that their weal and woe are one and inseparable. Their separateness is a mirage, their unity a deep-rooted spiritual entity. In the words of one of our great philosophers Dr. Radhakrishnan, "God is the human bond that unites all human beings. To break this bond even with our worst enemy is to tear God Himself to pieces"! Again, our teachers must realize that teaching is an art which calls for infinite patience born of a true love for children. A child is God's greatest gift and, in the oft-quoted words of Tagore, "every child brings the message that God is not yet disappointed in men". But the fulfilment of God's hope depends on what the parents, teachers and society can help the child to become, through their personal example,

their training, their curricular offerings, and the openings provided for his self-fulfilment. The contemporary world offers the child numerous opportunities as well as numerous risks. From an early age, he has to be trained to seize opportunities of fulfilment and to recognise the signs of danger. The latter cannot be entirely or perhaps even partially eliminated. The world is too much with us— with its violence and fanaticism, its irresistible media of mass propaganda, its heart-rending juxtaposition of riches and poverty, its numerous injustices, its temptation to seek success and money in easy and unscrupulous ways. We cannot, and should not, try even if it were possible to guard the students from *knowing* about them by keeping them in an ivory tower for that would make their transition from the world of school to the outside world more difficult and risky. There is certainly the danger that, in this approach, some adolescents may stray away from what we consider the path of reason, sanity and decency and fall under undesirable influences. The teacher is not God who can guarantee against that possibility; even God, so far I can judge, does not do so. But the danger will be greater if the students were kept in cotton wool and did not see the world as it is but only through the beautiful and deceptive hues of the rainbow. But, as I have said, it is essential for the teacher to cultivate love and patience—love to save him and themselves from frustration and pessimism, and patience to enable him to continue serving the student, however unresponsive or unattractive a particular individual may be, and however trying the circumstances in which he has to work—controlling his anger, his heartaches, his headaches and the attacks of cynicism to which he may quite conceivably be exposed.

I do not know how far, strictly speaking, these few verses, which I quote, from one of our great poets, Iqbal, are relevant here. They are taken from a long poem of his, called "the Mosque of Cordova", one of the most exquisite poems I have read. Its theme is that, in this transitory, mortal world, only those things abide, which are wrought on the anvil of love and, if I may venture to say so, education—especially of young children—which is not shaped on this anvil can never irradiate life's garden.

"Only to vanish arise all the miracles of Art,
All in this world passes away—all in the world passes away!

Death the beginning and end—death for the hid and the visible;
The pattern may be old or new, death is the journey's end !
"Yet, in this transient world, some works unending abide—
Works wrought by men of God into perception's grace !
The work of such men glows with the radiance of love;
Love, which is the well-spring of life, Love to which death itself
is forbidden.

Though swiftly and violently rolls the flood of time
Love itself is a flood which can stem all oncoming waves.
In love's calendared scroll is written not merely the passing
present
But other ages too—ages that have no name !

"Love is the breadth of Gabrel, love is the prophets' heart,
Love the messenger of God, love the voice of God !
Under love's ecstasy glows brighter our mortal clay,
Love is the unripe wine, love the beautiful cup !
Love is the priest of the shrine, love the commander of the hearts
Love is the wayfarer, with its thousand habitations
Love is the singer plucking song from the chords of life
Love is the brightness of life, love is the fire of life."

*K.G. Saiyidain was for many years Educational Adviser and
Secretary to the Government of India, Ministry of Education, and later
Director, Asian Institute of Educational Planning and Administration,
New Delhi.*

Establishing Validity of Self-Concept Measures

Pratibha Deo
Harbhajan Singh

The authors report a study conducted to establish the validity of self-concept measures. Two new concepts of validity (Convergent and Discriminant) were used, and the tools were Deo's (1963) Personality Word List (PWL), Self-Concept List (SCL) based on Deo's PWL, and Teachers' Rating. The investigators found the validity for these three measures of self-concept to be quite satisfactory.

One's actions and achievements in life are bound to be largely determined by what one feels and thinks of himself. In the realm of human abilities the conception of self is of far reaching significance. Under- or over-evaluation of self can indeed be tragic. Proper appraisal of one's own capabilities is essential to a happy and useful life. The self is also central in the learning process. Quite intelligibly the emphasis has now tended to shift on the self as a variable in motivation. It becomes evident that the self must also be accepted as a problem of perception. Self-concept, though essentially private, influences, and is revealed by most of a person's behaviour. It has been found that persons with good self-concepts are less anxious, are judged to be generally better-adjusted, are more effective in groups, and more honest in themselves and less defensive. A currently popular hypothesis is that human behaviour in any particular context is largely

determined by one's perceptions of oneself and of one's situation. It has been realised that psychology which excludes the self cannot fully understand human behaviour.

In recent years psychologists have undertaken extensive empirical research on the self-concept and its assessment. Out of the research three main aspects of self have been taken into consideration. These aspects are: (i) Perceived self, (ii) Ideal self, and (iii) Real self. The perceived self is what we think we are, the ideal self is what we would like to be, and the real self is what we actually are. All these three aspects of the self are important in understanding the behaviour of an individual.

As we have just seen the importance of the study of the self, another question or problem arises: How will we study it? Here we face the problem of choosing the best instrument, and not only that, but how well it satisfies our needs by some absolute standard. This is in fact the problem of establishing validity of self-concept measures, and hence its need and importance. Problems of measuring the phenomenal field may be seen as those of establishing construct validity. Construct validity is necessary because self-concept theories explicitly require that we measure a stated class of variables, the subjects' conscious processes.

Concepts of Convergent and Discriminant Validity
as Aspects of Trait (Construct) Validity

Campbell (1959) emphasized that the validity of a proposed trait or construct (such as Social Introversion) should be carefully studied to see if the trait is distinguishable from other traits and whether two or more measures of the trait (by independent methods) tend to agree.

In studies of both concurrent and predictive validity, fairly high correlation coefficients representing agreement or convergence, were sought as evidence of validity. However the construct validity of a test (as a measure of a hypothesized trait) requires evidence of both convergent and discriminant validity.

A test of a trait should show convergent validity, that is, fairly high correlations with other tests of the same trait and with measures of behaviour that should be associated with it.

A test of a trait should also show discriminant validity, that is, low correlations with tests from which it is supposed to differ.

Campbell (1959) recommends the use of the Multi-trait Multi-method Matrix as an ideal approach in studying the construct validity of a new test or rating scale. In the present study, both the aspects (convergent and discriminant) of construct (personality) validity have been employed.

SAMPLE

The sample of one hundred B.Ed. students was taken from the Government College of Education, Chandigarh. They were selected randomly for the study. The sample was taken from both sexes and while selecting the sample, the age variable was controlled. Students from 18 years to 25 years of age were included in the sample. The sample was limited to only 100 subjects, due to the fact that the scoring part of the study was the most difficult task.

TEST MATERIALS

The materials used in the present investigation are as follows.

Personality Word List (PWL)

The adjective check list was used here, because the adjective check lists prepared by Gough and Sarbin (1952) have proved useful in finding out the discrepancy between perceived and ideal self on the lines of Sarbin's Word List (1952). Deo (1965) prepared a Personality Word List (PWL) of 210 adjectives and has carried out certain useful investigations (1964, 1965, 1966) in which this list has been used. For the present investigation the same PWL was used.

Self-Concept List (SCL)

For the subject's convenience in understanding adjectives in the personality word list (PWL) of Deo, the self-concept list (SCL) was developed by Deo and Walia (1966). This list contains 175 adjectives mostly drawn from Deo's Personality Word List. The adjectives have been put in statement forms both in Hindi and English so that they become easy to understand.

Teacher's Rating

For obtaining scores on real self teacher's rating was employed as the criterion measure. The teacher's rating about the self of the students was taken on three point scale on Deo's PWL.

PROCEDURE

For recording the data both for perceived and ideal self, the recording sheets of the Self-concept List (SCL) and Personality Word List (PWL) were used. On these sheets the subjects marked statements and adjectives on a three-point scale.

After getting data on SCL and PWL, the teacher's rating about student's self on PWL was also taken.

Scoring

The adjectives in the PWL were categorized into six dimensions of Personality by Bhalla (1968). These dimensions are: (i) Intelligence, (ii) Emotional Adjustment, (iii) Social Adjustment, (iv) Character, (v) Aesthetic, (vi) Neutral. Similarly, adjectives in the SCL were categorized into the same six dimensions of Personality (as named above) by Deo and Walia (1966).

Scoring Keys

The recording sheets of PWL and SCL were scored with specially prepared keys. There are two types of keys—positive and negative. The positive keys are meant for those words or traits which are socially desirable as they have been judged by taking the ratings of many judges. The negative keys are meant for those words or traits which are socially undesirable, again as have been judged by many judges. These keys were meant to score for all the six dimensions of personality in case of both PWL and SCL. These keys are prepared on blank recording sheets by punching out their correct parts.

Discrepancy Scores

After finding positive and negative scores with the help of scoring keys, the composite scores were calculated. The composite scores

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are those scores which are obtained by subtracting negative scores from the positive scores.

The total discrepancy scores between the perceived self and the ideal self (termed as self-acceptance) were worked out by subtracting the total composite scores on the perceived self from the total composite scores on the ideal self. In the same way total discrepancy scores between the perceived and the real self (termed as self-insight) were calculated.

ANALYSIS OF DATA AND RESULTS

The data based on PWL, SCL and Teacher's Rating was processed statistically by using the following techniques:

Frequency Distributions,

Means, Standard Deviations, Skewness and Kurtosis,

Frequency Polygons,

Correlations.

From frequency distributions the following results were obtained.

TABLE

	Mean	SD	SK	KU
1. Frequency Distribution of total scores for Perceived Self on PWL	47·15	12·30	1.52	·246
2. Frequency Distribution of total scores for Ideal Self on PWL	49·55	11·90	1·28	·258
3. Frequency Distribution of total scores for Perceived Self on SCL	45·05	10·75	1·15	·272
4. Frequency Distribution of total scores for Ideal Self on SCL	47·60	11·50	1·68	·248
5. Frequency Distribution of total scores for Real Self on PWL	42·80	8.60	−.61	·272
6. Frequency Distribution of total discrepancy scores between Perceived and Real Self on PWL	10·34	4·10	−·60	·315
7. Frequency Distribution of total discrepancy scores between Perceived and Ideal Self on PWL	8·82	3.44	−1·88	·170

From the results of Mean, Standard Deviation, Skewness and Kurtosis, it is clear that they show a trend of normalcy, showing that the distributions obtained were nearly normal.

Correlations

The results obtained for the Convergent and Discriminant validities were presented diagramatically as given below.

**Convergent (on SCL and PWL) and Discriminant
(on PWL) Validities for Perceived Self**

	Intelli-gence	Emotional Adjustment	Social ad-justment	Character	Aesthetic	Neutral
Intelligence	.65					
Emotional Adjust-ment	.57	.69				
Social Adjustment	.67	.55	.80			
Character	.45	.41	.46	.89		
Aesthetic	.43	.31	.37	.18	.73	
Neutral	.14	.12	.06	.14	− .12	.22

**Convergent Validity (on SCL and PWL) for Ideal Self and
Discriminant Validity (on SCL) for Perceived Self**

	Intelli-gence	Emotional Adjustment	Social ad-justment	Character	Aesthetic	Neutral
Intelligence	.58					
Emotional Adjust-ment	.64	.61				
Social Adjustment	.56	.61	.61			
Character	.52	.36	.53	.85		
Aesthetic	.35	.22	.41	.22	.58	
Neutral	.04	.012	.06	.10	− .02	.29

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Results of Correlations for Real Self on PWL

The correlations worked out between perceived-real discrepancy scores and perceived-ideal discrepancy scores are as below.

Dimension	Correlations
Intelligence	·47
Emotional Adjustment	·42
Social Adjustment	·55
Character	·66
Aesthetic	·26
Neutral	·03

DISCUSSION

From the Frequency Distributions it is evident that three groups, namely: (i) those who underestimate, (ii) those who over-estimate, and (iii) those who have average self-estimation, are formed. As compared to the average self-estimation group, there are few subjects who over-estimate themselves, and from those who underestimate themselves, a larger number have a tendency towards average self-estimation. Again, from the polygons similar results were drawn.

Convergent Validity

From the coefficients of correlation obtained in case of the perceived self on all the six dimensions of personality and on the total scores of PWL and SCL, all but one are significant at .01 level as seen from Garrett (1958). The one which is not significant at .01 level is significant at .05 level. The value of correlation significant at .05 level was for the neutral dimension. Similar results have been obtained in the case of the ideal self.

It may, therefore, be seen that the correlations obtained between the scores of the same dimensions of personality on PWL and SCL in the case of the perceived and the ideal self are quite significant. Thereby we may conclude that both the instruments (PWL and SCL) measure that thing for which they were intended.

Discriminant Validity

Intercorrelations were obtained for the six dimensions of Personal-

ity on the perceived self on PWL. From these correlations, it may be seen that except in the case of neutral, and in some cases of aesthetic, the value of correlation is significant at .01 level. This means that all these dimensions have high correlations among themselves. Thus the validity of PWL seems to be high. Similarly, the values of the intercorrelations regarding the perceived self on SCL show the high validity of SCL.

Teacher's Rating

The values of correlations obtained for personality dimensions of intelligence and emotional adjustment were significant at .05 level and for social adjustment and character the value is significant at .01 level. And for aesthetic, neutral and total scores, the values of correlations were not significant. It is clear from these results that the person, who is intelligent, is emotionally and socially adjusted and has a good character, is likely to have self-insight and self-acceptance.

CONCLUSIONS

We may draw the following conclusions regarding the present investigation:

1. From the frequency distributions and frequency polygons it is clearly seen that as compared to the average self-estimation group there are only a few cases who fall at the two extremes of the distributions (curves); a larger number of persons fall at the centre of the distributions (curves). Thus the distributions (curves) are approximately normal.

2. Correlations obtained in case of convergent validity for perceived and ideal self are significantly high for all the dimensions of personality except in some cases of neutral dimension. Thus the convergent validity as reported is quite high.

3. Correlations obtained in case of discriminant validity for the perceived self on PWL and SCL are significantly high for all the dimensions of personality except in case of neutral and, in some cases, of aesthetic dimensions. Thus

the discriminant validity as reported is high.

4. Correlations obtained for real self on teacher's rating have also been reported significantly high. Thus it means that the teacher's rating is also a good measure for the personality estimation of the students.

Finally, we may conclude that the validity of self measures, viz., PWL and SCL and Teacher's Rating, is significantly high, thereby establishing the validity of the self-concept measures.

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Pratibha Deo is Reader in the Department of Education, Panjab University, Chandigarh.

Harbhajan Singh is Lecturer in Psychology, Khalsa College of Education, Amritsar.

Effectiveness of Four Response Modes in Programmed Learning— An Exploration

Gunvant B. Shah

The author reports a study undertaken to compare experimentally the efficacies of four different modes of responding in programmed learning. A sample of 188 pupils of Standard VIII was taken from two secondary schools in Baroda city and Shah's programme on Addition and Subtraction of Directed Numbers was given separately to the pupils of the two schools. The pupils responded either overtly or covertly. Each group was further divided into a group making constructed responses and a group reading the frames with answers already filled in. Significant differences were found on the immediate test scores of the four treatment groups, but not on the retention scores. The covert response prompt group showed an appreciable time-saving.

Skinner has described learning in terms of shaping of behaviour. His behaviourist point of view requires the learner to make an active, overt response. Holland (1960) suggested eight basic rules for programming with reference to the Skinnerian technique. The present inquiry is primarily concerned with the following two of them:

1. Only overt responses suitably reinforced are learned.
2. The students must 'write' the programme.

Both these rules are associated with Skinner's theory of learning. Skinner wishes to eliminate all non-observable factors from the learning situation although he does not deny their existence. Skinner further asserts that the student should compose his response rather than select it from a set of alternatives. Classical operant conditioning assumes that the responses must be overt and not covert in order to have 'expressed behaviour' which can be observed, recorded, and used to regulate subsequent behaviour.

As with the other original assumptions, that of the necessity of overt responses is being challenged by research. Experiments have shown that an overt response need not in fact always be made. Campbell (1961) studied the effectiveness of the following four conditions:

1. Subjects write in the response only when sure of its correctness.
2. Subjects write answers in every blank.
3. Subjects do not write answers but mentally compose answers.
4. Subjects read the same frames with no words omitted—no blanks to fill.

He found that on immediate post-test there was no significant difference among the means of the four groups. Ten weeks later, condition (4) was better than others at 0.05 level. The expectation that condition (1) would make for more learning and same time was not supported. Condition (1) resulted in fewer errors, but these did not show up in learning effect.

Cummings and Goldstein (1962) inquired into the effectiveness of overt vs. covert responding on the learning of verbal and of pictorial material. Significantly higher scores were made by the overt responders on both the verbal and pictorial materials and on both the immediate and the delayed post-tests. The covert responders took an average of 50 minutes to complete the programme; the overt responders, about 96 minutes.

Evans (1960) found that students not required to make overt response to items, completed programme in about 65 per cent of time required by overt responding students. Goldbeck and Campbell (1962) compared overt, covert, and reading (i.e., no blanks to fill in) res-
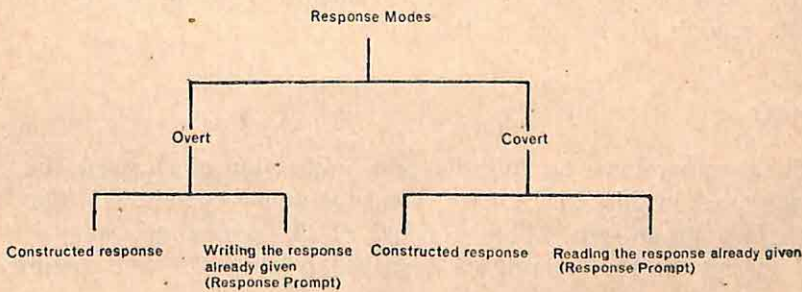
ponse models. He found significant interaction of difficulty with response mode. He found the overt response group performing below others at low difficulty level and above others at intermediate difficulty level. At the most difficult level, the reading mode was highest, but not significantly so. Hughes (1961) compared the covert response mode with the overt response mode while following up '7070 Training' and found that the covert response mode was more efficient than the overt. Koromondy (1960) found no significant differences between the overt and the covert response modes. Lambert and Miller (1962) found that intelligence was significantly associated with the amount of information acquired from the programme. Covert responses proved to require less time than overt ones and to result in about as much learning. Sidowski and Kopstein (1961) found that the covert response proved more efficient than the overt if both the time and amount of learning were taken into account. Silverman and Alter (1960) found that students who simply read items learned significantly more than students who read items and responded actively. Stolurow and Walker (1962) found no significant difference between learning from writing responses and merely thinking them. Covert responses required less time than overt. Leith and Ghuman (1966) found no significant differences between the four treatments selected for the present inquiry. They noted that there was an appreciable Response-mode Answer interaction—the covert constructed response mode being significantly better than the overt constructed response mode, while the two answer groups were not different.

PURPOSE

It was intended to compare experimentally the relative efficacies of the four response modes described below.

Response Modes

Overt

Covert

Constructed response — Writing the response already given (Response Prompt) — Constructed response — Reading the response already given (Response Prompt)

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Terms Defined

For the purposes of the present inquiry the following definitions were used.

1. *Overt response.* A student's oral, written or manipulative act which is, or can be recorded by an observer.
2. *Covert response.* An internalized response which the student presumably makes but which is neither recorded nor otherwise available to an observer.
3. *Constructed response.* A student's effort to complete a sentence, solve a problem or answer a question. A model of the response may be provided for the student to copy, but as long as he writes, says or thinks rather than selecting it from a set of alternatives the response is constructed.
4. *Response prompt.* A method of responding in which the correct responses are already given in the frame. A student either reads the responses given or copies them out after reading.
5. *Effectiveness.* The effectiveness of a response mode would be considered in view of the following three criteria:
    (i) Performance on the criterion test immediately given after the programme.
    (ii) Average time taken by the treatment group.
    (iii) Retention score.

The Experiment

Subjects

The subjects were 188 pupils of Standard VIII in two English-medium schools of the city of Baroda.

Materials

Shah's programme on Addition and Subtraction of Directed Numbers was used in this experiment. The programme contains 95 frames written in a linear style. Four versions of the programme were prepared to suit the four treatments described below. The test compris-

ing of 10 multiple-choice type and 10 fill-in-the-blanks type items was
used as a criterion measure.

Experimental Treatments

The treatments consisted of four different response modes of the
programme in algebra as mentioned below:

A—Overt-Answer not Given
B—Overt-Answer Given (Response prompt)
C—Covert-Answer not Given
D—Covert-Answer Given (Response prompt)

A description of the treatments is given below.

A—*Overt-Answer not Given.* The pupils constructed respon-
ses and wrote them before ascertaining whether they were cor-
rect. They were instructed to write the answers in a separate
answer sheet provided. The correct answers were provided on
the left-hand side of the margin and could be read after remov-
ing the paper which covered them.

B—*Overt-Answer Given.* The pupils wrote the answers which
were already given in the blanks. They were instructed to read
a frame carefully along with the answer and write the answer
given in the blank(s), in a separate answer sheet provided.

C—*Covert-Answer not Given.* The pupils constructed respon-
ses mentally before ascertaining whether they were correct.
They were instructed to think of the correct answers and then
ascertain whether they were correct by removing the paper on
the left-hand side of the margin.

D—*Covert-Answer Given.* The pupils read the responses which
were already given in the blanks. They were instructed to just
read the frames carefully along with the correct answers already
provided.

PROCEDURE

First Phase

The experiment was conducted separately in the two schools of
the city of Baroda. The available samples of 84 subjects in one

school and 104 in the other were randomly assigned to the four treatment groups. All subjects were instructed to go according to their own speed and the time taken by each subject was noted in order to set the average time taken by each treatment group. The criterion test was immediately administered after all the members of a group had completed the programme. In all the four groups the oral instructions for the programme as also for the criterion test were given by the same person. The programme was administered in two sessions with a break of 25 minutes.

Second Phase

The criterion test was readministered to the same subjects to measure delayed retention. It was readministered after five days to 84 subjects in one of the two schools and after 15 days to 104 subjects in the other. Retention scores of the four treatment groups were compared. Further, the four groups were also compared in terms of percentage saved.

Third Phase

The effectiveness of a response mode was also judged in terms of the time taken by the four treatment groups. The time taken by an individual pupil was noted down to calculate the average time taken by each group.

Statistical comparisons were made on the following three criteria:

1. Scores in the criterion test given immediately after the programme administration.
2. Scores on the delayed retention test given after some days.
3. Average time taken by the four treatment groups in completing the programme.

RESULTS

First Phase

In this phase, differences between the treatment groups on the immediate test scores are discussed.

TABLE 1

*Mean Scores of Subjects In Four Treatment Groups
on Immediate Test Scores in Schools I and II*

School		A Overt Answer not Given	B Overt Answer Given	C Covert Answer not Given	D Covert Answer Given
I	$\overline{X}$	14·8	11·6	13·7	15·5
	n	21	21	21	21
II	$\overline{X}$	14·7	12·9	13·8	15·3
	n	26	26	26	26
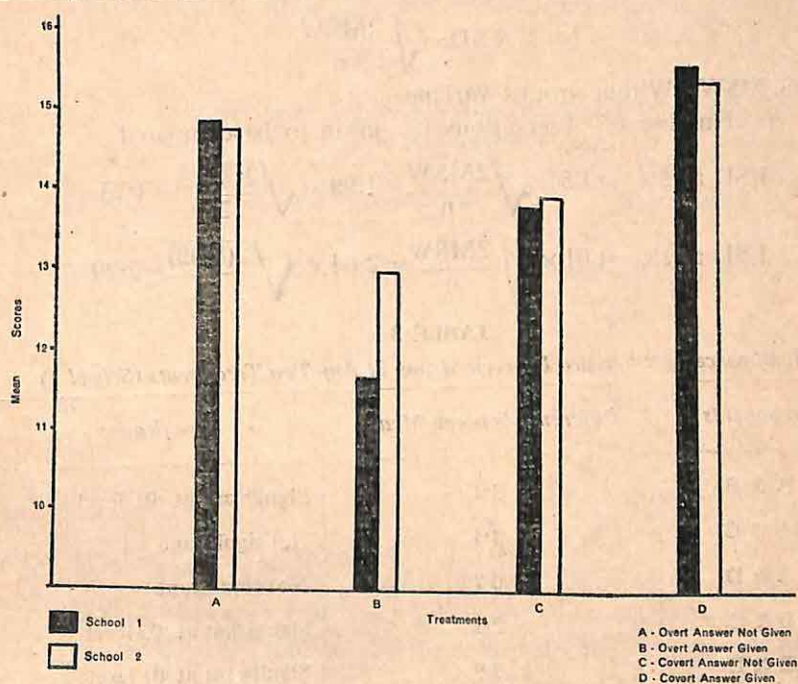
Graph 1. Graph showing mean scores of four treatment
groups on immediate test (Schools I and II)

TABLE 2

*Analysis of Variance of the Immediate Test Scores
For The Four Treatments (School I)*

Source of Variation	df	S. S.	M. S.	F	Significance
Among the Means of Treatments	3	182·8	60·93	7·59	Significant at ·01 level
Within Groups	80	641·7	8·02		

Analysis of variance does not tell us which one treatment is different from the other. In such cases we have to resort to t-test or some other derived techniques. The Least Significant Difference (LSD) Test is one such technique using a pooled error variance (MSW or within-group variance) computed in analysis of variance technique. The formula for LSD is:

$$LSD = \sqrt{\frac{2MSW}{n}}$$

Where MSW = Within groups variance

n = Number of observations per mean to be compared

$$LSD \text{ at } 5\% = t.05 \times \sqrt{\frac{2MSW}{n}} = 1.99 \times \sqrt{\frac{2(8·02)}{21}} = 1·73$$

$$LSD \text{ at } 1\% = t.01 \times \sqrt{\frac{2MSW}{n}} = 2·64 \times \sqrt{\frac{2(8·02)}{21}} = 2·29$$

TABLE 3

Significance of Difference Between Means of Any Two Treatments (School I)

Treatments	Difference between Means	Significance
A & B	3·2	Significant at ·01 level
A & C	1·1	Not significant
A & D	0·7	Not significant
B & C	2·1	Significant at ·05 level
B & D	3·9	Significant at ·01 level
C & D	1·8	Significant at ·05 level

TABLE 4

Analysis of Variance of the Immediate Test
Scores For the Four Treatments (School II)

Source of Variation	df	S. S.	M. S.	F	Significance
Among the Means of Treatments	3	88·96	29·65	4·36	Significant at ·01 level
Within groups	100	679·93	6·79		

$$\text{LSD at } 5\% = t. \cdot 05 \times \sqrt{\frac{2MSW}{n}} = 1\cdot98 \times \sqrt{\frac{2(6\cdot79)}{26}} = 1\cdot89$$

$$\text{LSD at } 1\% = t. \cdot 01 \times \sqrt{\frac{2MSW}{n}} = 2\cdot63 \times \sqrt{\frac{2(6\cdot79)}{26}} = 1.42$$

TABLE 5

Significance of Difference Between Means of
Any Two Treatments (School II)

Treatments	Difference Between Means	Significance
A & B	1·9	Significant at ·01 level
A & C	0·9	Not significant
A & D	0·6	Not significant
B & C	0·9	Not significant
B & D	2·4	Significant at ·01 level
C & D	1·5	Significant at ·05 level

Observations (First Phase)

1. It can be seen that the overall differences between the treatment means are significant at .01 level in both the schools (Tables 2 and 4).

2. The results on LSD test in both the schools seem to be very consistent with only one exception of treatments B and C.

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3. The mean scores of the four treatment groups in both the schools show perfect rank correlation. In both the schools the four treatments could be arranged according to merit in the following order.

First   D—Covert-Answer given (Response prompt)
Second A—Overt-Answer not given
Third   C—Covert-Answer not given
Fourth B—Overt-Answer given (Response prompt)

Second Phase

In this phase, the differences between treatment groups on retention test scores are discussed. The four treatments are also compared on the retention scores in terms of saving.

TABLE 6

Mean Scores of Subjects in Four Treatment Groups on
Delayed Retention Test Scores in School I and II

School		A Overt Answer not Given	B Overt Answer Given	C Covert Answer not Given	D Covert Answer Given
I	$\overline{X}$	12·2	12·3	11·6	10·5
	n	21	21	21	21
II	$\overline{X}$	12·1	13·00	12·2	12·7
	n	26	26	26	26

TABLE 7

Analysis of Variance of the Retention Test Scores for the
Four Treatments (School I)

Source of Variation	df	S. S.	M. S.	F	Significant
Among the Means of Treatments	3	41·28	13·76		
Within Groups	80	764	9·55	1·44	Not significant

$$\text{LSD at } 5\% = t. \ \cdot 05 \times \frac{2\text{MSW}}{n} = 1 \cdot 99 \times \sqrt{\frac{2(9 \cdot 55)}{21}} = 1 \cdot 89$$

$$\text{LSD at } 1\% = t. \ \cdot 01 \times \frac{2\text{MSW}}{n} = 2 \cdot 64 \times \sqrt{\frac{2(9 \cdot 55)}{21}} = 2 \cdot 50$$

Graph 2. Graph showing mean scores of four treatment
groups on retention test (Schools I and II)

TABLE 8

*Significance of Difference Between Mean Retention Scores of
Any Two Treatments (School I)*

Treatments	Difference Between Means	Significance
A & B	0·1	Not significant
A & C	0·6	Not significant
A & D	1·7	Not significant
B & C	0·7	Not significant
B & D	1·8	Not significant
C & D	1·1	Not significant

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<div align="center">TABLE 9</div>

<div align="center">Analysis of Variance of the Retention Scores for the Four
Treatments (School II)</div>

Source of Variation	df	S. S.	M. S.	F	Significant
Among the Means of Treatments	3	18·5	6·16	1·00	Not significant
Within Groups	100	614	6·14		

$$\text{LSD at } 5\% = t. \ \cdot 05 \times \sqrt{\frac{2\text{MSW}}{n}} = 1\cdot98 \times \sqrt{\frac{2(6\cdot14)}{26}} = 1\cdot37$$

$$\text{LSD at } 1\% = t. \ \cdot 01 \times \sqrt{\frac{2\text{MSW}}{n}} = 2\cdot64 \times \sqrt{\frac{2(6\cdot14)}{26}} = 1\cdot81$$

<div align="center">TABLE 10</div>

<div align="center">Significance of Difference Between Mean Retention Scores
of Any Two Treatments (School II)</div>

Treatments	Difference Between Means	Significance
A & B	0·9	Not significant
A & C	1·1	Not significant
A & D	0·6	Not significant
B & C	0·2	Not significant
B & C	0·3	Not significant
C & D	0·5	Not significant

<div align="center">TABLE 11</div>

<div align="center">Comparison of Four Treatments on Retention in
Terms of Saving (School I)</div>

Treatments	Means Scores on Immediate Test	Mean Scores on Retention Test	Percentage Saved	Rank in Terms of Saving
A	14·8	12·2	82·4	III
B	11·6	12·3	100	I
C	13·7	11·6	84·6	II
D	15·5	10·5	67·7	IV

TABLE 12

*Comparison of Four Treatments on Retention in
Terms of Saving (School II)*

Treatments	Mean Scores on Immediate Test	Mean Scores on Retention Test	Percentage Saved	Rank in Terms of Saving
A	14·7	12·1	82·3	IV
B	12·9	13·0	100	I
C	13·8	12·2	88·4	II
D	15·3	12·7	83·0	III

Observations (Second Phase)

1. It can be seen that the overall differences between the treatment means are not significant at any level in both the schools (Tables 7 and 8).

2. The results of LSD test in both the schools seem to be quite consistent as the differences between any two treatments are not significant.

3. In school I, the retention test was given after five days, while in School II after 15 days. In both the schools the four treatments could be arranged according to merit in the following order.

	School I	School II
First	B	C
Second	A	B
Third	C	D
Fourth	D	A

As the differences between the means are not significant it can be said that the four treatments are almost equally effective as far as retention is concerned.

4. As regards the amount saved, it can be seen from Tables 11 and 12 that treatment B seems to be most effective and treatment C comes next. It should be noted that in both the schools the retention scores with treatment B are little higher than the immediate test scores.

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This can be accounted for by possible reminiscence. Treatment D seems to be the least effective in School I but not quite so in School II. less time-consuming than overt.

Third Phase

In this phase, the effectiveness of a treatment was judged in terms of the average time taken by the subjects.

TABLE 13

*Ranks of The Four Treatments According to the Average
Time Taken in Schools I and II*

| Treatment	Time Taken in Minutes School I	Time Taken in Minutes School II	Ranks School I	Ranks School II
A	94	87	IV	III
B	70	92	III	IV
C	62	76	II	II
D	45	59	I	I

Observations

1. Treatment D (Covert-answer given) seems to be least time-consuming in both the schools.
2. Treatment C (Covert-answer not given) comes next to D.
3. In any case covert responding appears to be comparatively less time-consuming than overt.

DISCUSSION

The results of the experiment are not in conformity with the two basic rules suggested by Holland. As mentioned earlier, Holland
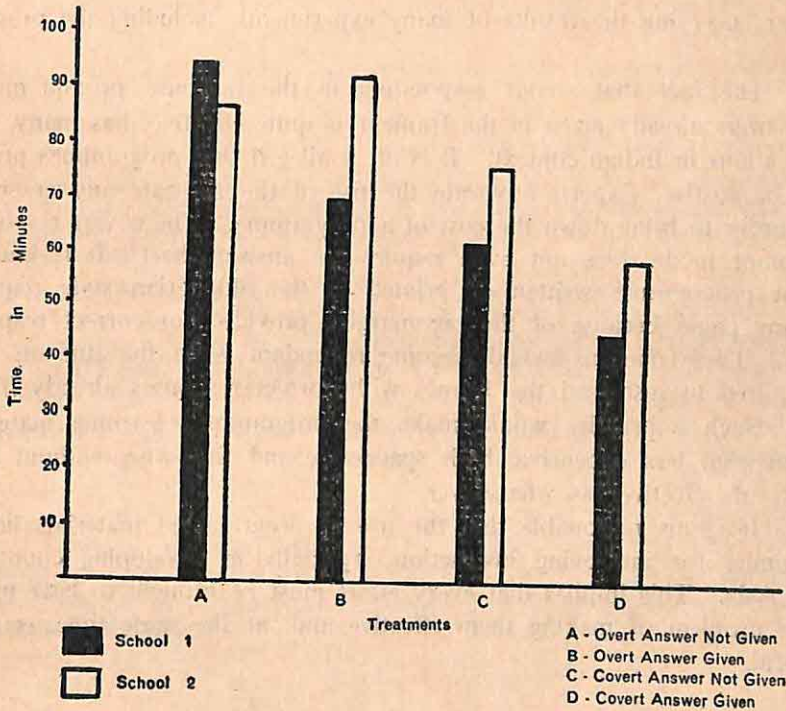
Graph 3. Graph showing average time taken by four treatment groups (Schools I and II)

(1960) asserts that only overt responses suitably reinforced are learned and that the students must 'write' the programme. The results have shown that covert responding is at least as effective, if not more, as overt responding from the viewpoint both of immediate and delayed test scores. Furthermore, it is time-saving too. Leith and Guhman (1966) asserted that "being aware of the answer before making a try does not necessarily lead to poorer learning." The results of the present experiment support this contention.

It should be noted that treatment D (covert answer given) which required the pupils to just read the frames proved to be most effective both in terms of immediate test scores and the time taken. Skinner's emphasis on overt and active responses does not seem to be tenable

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after surveying the results of many experiments, including the present one.

The fact that covert responding in the response prompt mode (answers already given in the frames) is quite effective, has many implications in Indian context. It is often alleged that programmes prove to be costly. Experts advocate the use of the separate answer sheet in order to bring down the cost of a programme. The covert response prompt mode does not even require the answer sheet. It is known that programmes written or printed in the Skinnerian style require many pages because of the big margins provided for correct responses. These margins would become redundant when the students are required to just read the frames with correct responses already filled in. Such a practice would make the programmed learning material somewhat less expensive, both space-wise and time-wise, without any loss of effectiveness whatsoever.

It seems reasonable that the use of programmed materials holds promise for improving instruction especially in developing countries of Asia. This implies that every effort must be brought to bear upon the problem of making them effective and, at the same time, economical.

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Gunvant B. Shah is Reader at the Centre of Advanced Study in Education, M.S. University, Baroda.

Self-Acceptance and Academic Achievement— A Review of Research

Sagar Sharma

Studies conducted in the last two decades to establish the relationship between self-acceptance and academic achievement provide contradictory findings. Some report. a linear relationship between these two variables and others present a zero relationship, while two studies recently conducted in India provide evidence of a curvilinear relationship. In this paper the author critically examines all these studies and offers suggestions for further research in the area. He also stresses the importance of more cross-cultural research for making reliable generalizations.

The study of personality factors as predictors of academic achievement has claimed the attention of a number of research workers. Some of the relevant research reviews were published by Emme, 1942; Garret, 1949; Beasley, 1957; and Gowan, 1960. All these consistently emphasize the role of non-intellectual factors in the student's performance. The investigations so far undertaken have attempted to focus on a wide variety of personality traits hypothesized as factors of academic achievement, such as extraversion and intraversion, neuroticism, emotional adjustment, socialization, anxiety, achievement motivation, self-concept, etc. The self-concept or phenomenal self as defined in contemporary psychology refers to the individual's perception of

himself. In general, researches in the area of self-concept have concerned themselves with the two measures—both considered as measures of self-acceptance. One measure is simply the favourableness of self-perception, i.e., positive and negative self-concept. The other measure of self-acceptance is the discrepancy between the perceived self and the ideal self. McCandless (1961) predicts, "poor self-concepts, implying as they often do a lack of confidence in facing and mastering the environment, might accompany deficiency in one of the most vital of the child's areas of accomplishment—his performance in school." The assumption is that the student with the adequate self-concept, feeling that he can succeed, will put forth the necessary academic effort, whereas the student with inadequate self-concept, feeling that he cannot succeed, will not put forth the necessary academic effort to achieve in school and college. A reasonably good number of studies have been conducted in the last two decades to establish the relationship between self-acceptance and academic achievement. But a careful perusal of these studies reveals contradictory and inconsistent findings.

Evidence of Linear Relationship

One group of studies provides evidence of linear relationship between self-acceptance and academic achievement. In a study conducted on 102 students of fifth and sixth grades by Coopersmith (1959), a correlation of .36 was found between positive self-concept and school achievement when socio-economic status was held constant. Another study was conducted by Walsh (1956) who compared the self-concept of high and low achieving boys, matched for superior IQ and certain other variables. On the Driscoll Playkit, the doll play of the under-achievers, when compared to that of adequate achievers, less frequently depicted the boy doll as (a) free to pursue his own interests, (b) free to express his feeling, (c) accepted as a member of the family, and (d) adequate in response to environmental stimuli. It was assumed that these findings indicated differences in their self-concept. Twenty boys from the second through the fifth grade were included in each of the groups. Fink (1962) supported the hypothesis that adequate self-concept is related to high academic achievement and that

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inadequate self-concept is related to low (under) achievement. The results were significant at the .01 level for boys and at the .1 level for girls. Payne (1962) devised an objective theory-based measure of academic self-concept, the Word Rating List (WRL), for predicting academic achievement. With the exception of underachievers, the WRL provided significant concurrent and predictive r's with grade point averages. Coombs and Davis (1966) reported that Ss with high scholastic records had lofty conceptions of their scholastic ability, expected and usually obtained high college grades. Edwards (1966) used an 85—item multiple-choice type questionnaire called the Personal Data Inventory (PDI) to obtain self-rating scores, which were found to be significantly related to the prediction of college success as measured by GPA (Grade point averages) and by college hours completed. Irvin (1967) compared the semester grades with sentence-completion responses of 171 first-year college students. The most notable finding was a positive correlation ($r=.48$) between self-concept and academic achievement—the correlation was significant at the .01 level. Kerensky (1967) administered the Coopersmith Self-Esteem Inventory to 452 randomly selected elementary pupils in grades three through six. Following one year of Flint's compensatory education programme, the relation between pupil's self-concept and achievement showed a marked increase (.29 to .38) during the first year of new programme. Quimby (1967) used a Q-sort method to measure the relationship between the self-concepts and ideal self-concepts. The students were divided into an achieved group and an underachieved group on the basis of grade-point averages. The self-ideal relationship was higher for the achieved group. The differences were greater among girls than among boys. Blair (1968) studied ninth grade negro students. The self-concept was measured by the Index of Adjustment and Values (IAV) standardized by Bills *et al* (1951). There was a significant relationship between academic achievement of these subjects and their self-concept, independence and inner control. In India, Bhatnagar (1966) also explored the effect of self-concept and ego function on academic achievement, especially in terms of self-acceptance and self-rejection. He showed that a definite relationship existed between the ego function and scholastic performance. Kulwant (1967) reported a correlation of .33 between self-acceptance and achievement ($N=190$).

Perin Mehta (1968), in a recent study, identified the achievers and underachievers among bright high school males. The self-concept of these two groups was assessed by means of items describing the positive or negative aspects of self-concept. The underachievers were characterized by the negative aspects of self-concept, and the achievers by the positive aspects.

Evidence of Zero Relationship

There are some other studies which report no relationship between self-acceptance and academic achievement. Mitchell (1959) reported that, as a group, the self-rejecting women did as well in school as those who were self-accepting, and did not differ from them in intelligence. Fiedler *et al* (1958) found no relation between self-esteem and grade-point average. Turner and Vanderlippe (1958) obtained only non-significant trends towards higher grade-point averages among *Ss* with high self-ideal congruence. (*Ss* high or low on self-ideal congruence were comparable on ACE test.) Among 251 fourth and sixth grade children used as *Ss* by Perkins (1958), there was no relationship over a six-month period between changes in school achievement and changes in self-ideal congruence. Torrance (1954) reports, "little relationship between self-estimate and achieved standings among 1215 entering college freshmen." Gustav (1962) could not find it possible to differentiate, on the basis of responses to the "Who am I?" Test, among college students who had superior, average, or failing grades. McIntosh (1967) investigated the self-concept of gifted, honours and average college students. Bills IAV was used to obtain self-concept scores. He found that the gifted did not have significantly higher self-concepts than the honours or the average, nor did the honours have significantly high self-concept than the average. In a study by Schaar (1967), participation in different kinds of supportive counselling experiences resulted in differences in five academic achievement groups, but there were no differences found in the changes in self-concept among these sample groups as measured by California Psychological Inventory.

Evidence of Curvilinear Relationship

However, there are two studies by Deo and Sharma (1970 a,

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1970b), which report curvilinear relationship between the self-acceptance and school achievement of adolescents (F=338, M=362). The sample was selected from thirteen urban higher secondary schools of four Indian States and was quite heterogeneous. In these studies, the Self-concept Inventory, standardized by Sharma (1969) on the Bills IAV pattern, was used. A single self-concept score was obtained by subtracting the total negative self-concept score from the total positive self-concept score. Similarly, self-ideal discrepancy scores were obtained by calculating word-to-word discrepancies of 69 adjectives between perceived-self ratings and ideal-self ratings on a five-point scales. Both the self-concept scores and self-ideal discrepancy scores were normally distributed. The achievement scores were based on three years' continuous and comprehensive evaluation of students studying under the jurisdiction of Panjab University. The reliability of these achievement scores has already been reported by Sharma (1969). In the first study (Deo and Sharma, 1970 a), the eta-coefficient between self-concept and school achievement was observed to be .18 (N=700), which was significant at the .06 level. The F-test of linearity showed the value of F to be significant at the .06 level. Similarly, in the second study (Deo and Sharma, 1970b), the value of the eta-coefficient between self-ideal discrepancy and school achievement was found to be .20 (N=700), which was significant at the .01 level. The F-test of linearity showed the value of F to be significant at .02 level. Thus it was seen that the middle group (moderately contended) scored significantly higher than both the extreme groups (extremely satisfied and extremely dissatisfied). This means there are self-acceptant low achievers and self-rejectant low achievers. It would be worthwhile to study the psychological variables which differentiate self-acceptant low achievers from self-rejectant low achievers. No such attempt was made in these studies.

Comments

It is clear from the review of these studies that the findings are contradictory. Some studies report linear relationship; others report no relationship; while the two conducted in India showed a curvilinear relationship between self-acceptance and academic achievement. It is

difficult to compare these studies due to the different tools used, the heterogeneity of samples in characteristics like sex, age, ability, religion, class; size of samples; different controls of correlated variables; application of diverse methods of identifying high and low achievers; and different educational and evaluation systems. A number of these studies used very small samples. Another group of studies utilized only the extreme groups and neglected the middle groups on the self-concept and achievement continua. There seems to be no justification of utilizing self-acceptance scores until they are normally distributed, and thus free from the contaminating influence of the social desirability variable, and hence more reliable. There is a need for using large, heterogeneous samples which are very widely scattered on self-concept and achievement continua. The self-concept-achievement curves badly need strengthening at the extremes. Further, the impact of intellectual factors on academic achievements need to be partialled out if one wants to get a clear picture of the effect of non-intellectual factors on achievement. Moreover, the synthesis of these studies becomes more difficult because a wide variety of instruments have been used for inferring self-concept. In a number of cases the reliabilities and validities of these tests are not reported. It will be highly desirable if more limited and well-analysed instruments are used for inferring self-concept to facilitate synthesis of accumulated information. Only one study by Walsh (1956) used a projective test, i.e., the Driscoll Playkit, to infer self-concept. The Ss self-concept was assessed from the behaviour and attitudes he attributed to the boy doll. It would have been better if the convergent validity of this projective test had been demonstrated by questioning the boys about their phenomenal self-concepts. Commenting on this test, Wylie (1961) observes:

> Also, the fact that the E who administered the play test scored all the stories raises some question of contamination of findings. It seems possible that she might have remembered the sources of some of the stories, even though identifying data had been removed from the protocols before scoring was begun.

Perhaps the use of both phenomenal and non-phenomenal indices of self-concept might be more useful. Moreover, a number of studies used the correlation technique which only speaks of mutual relationships between these two variables. As such cause-effect generalizations cannot be made. Thus the observed correlations might have

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partly arisen from self-acceptance affecting academic achievement and partly academic achievement affecting the self-acceptance. Further, analysis of variance designs are also called for, because some of the apparent contradictions may be due to the interaction of variables which are yet unexplored in a systematic way by any of the presently available studies. More cross-cultural studies are needed before reliable generalizations could be made.

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Sagar Sharma is Lecturer at the Government College of Education, Chandigarh.

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Research on Institutional Environment—A Review [1]

T. Venkateswara Rao

In recent years a number of researches have been conducted to study the influence of institutional environment on student growth, achievement and output. In this paper the author discusses some of the instruments developed to measure institutional environment, and reviews the significant researches conducted in India and abroad. The author also suggests a research strategy in this area for the Indian educational scene, and lists an extensive bibliography for the interested researcher.

The heredity-environment controversy is as old as the existence of psychology, and studies supporting one point of view or the other are numerous. The consensus is much in the direction of equality of importance of both hereditary and environmental factors in influencing personality growth and development. With the degree of consensus arrived at on the issue, and the complexity and practical impossibility involved in controlling heredity, psychologists in the 1960s have started exploring the environmental characteristics that foster growth and happiness in human life. A majority of these attempts are directed towards the study of school or college environments and industrial climates as they are the two types of organizations with relatively sta-

ble climates, enabling objectivity in quantification. By now, a number of techniques have been developed to measure college or school environments as well as the organizational climates of industries. The growing sophistication of researches conducted demonstrating the influence of the college environments on student output in terms of the achievement as well as personality characteristics is catching the attention of the educational psychologists. The growth is so rapid that in this decade alone there have emerged not one but a number of instruments to measure institutional environments; and the number of researches conducted run into hundreds. Recently measures of the environmental perceptions are being used also to predict the student unrest in the campuses. Parallel to this is the use of the measurement of organizational climate of industries to predict industrial unrest. Noting the growing student unrest in Campus India, and the way it is spreading like a wild fire among the universities, perhaps it is advisable for Indian educationists to start thinking of various ways and methods of predicting and controlling student unrest, and to start exploring ways and means of creating desirable learning environments in the schools and colleges. Studying objectively the various dimensions of institutional environment and finding out the amount of influence they exert on student development seems to be a worthwhile area of research. In this paper some of the instruments developed to measure institutional environments have been described, followed by a review of some of the researches conducted in India and abroad. Finally, a research strategy in this area for the Indian educational scene has been suggested. An extensive bibliography in this area has been presented for the interested researcher.

MEASUREMENT OF INSTITUTIONAL ENVIRONMENT

Environment is such a vast term that it can include anything and everything. A number of scales have been developed so far to measure the environment of colleges, high schools and other organizations. As we shall see later, some of these instruments, named differently have something in common to measure, whereas some others having something in common in their titles measure altogether different dimensions of the environment. The different instruments that have appeared so

far in the literature of educational research are described below:

1. *The College and University Environment Scales*

The College and University Environment Scales or CUES, developed by Pace (1963) containing 150 true-false items to measure campus climates has five scales derived by factor analysis. These are:

1. *Practicality Scale* which tells about the degree to which the environment is structured and orderly, where rules and procedures are important, and where interest in ideas for their own sakes tend to be deemphasized;

2. *Community Scale* which measures the degree to which a warm, cohesive atmosphere is emphasized, and whether there are close relationships between students and faculty and among students.

3. *Awareness Scale* which measures the degree to which interest in philosophy, the arts, and national and international affairs give evidence of personal awareness in relations to society;

4. *Propriety Scale* which measures the degree to which proper forms and conventions are emphasized, good manners are evident, and there tends to be unconventional behaviour, etc.

5. *Scholarship Scale* to measure the degree to which the pursuit of knowledge and ideas and the attainment of scholarly achievement are valued.

2. *High School Characteristics Index*

The High School Characteristics Index or HSCI is another environmental technique developed by Stern (1963) to assess the student's perception of his environment by asking him to respond with either "true" or "false" to items about his school. This yields scores on 30 scales representative of different aspects of "press" in the environment. Mitchell (1968 a) administered HSCI to 2,819 senior class students from 11 schools of a metropolitan area. Factor analysis of the 30 scales yielded the following 4 factors:

1. *Strong Intellectual Orientation*, having high loadings for the

variables of "press" for achievement, ego achievement, energy, humanities and social sciences, reflectiveness, science and understanding.

2. *School Activities*, having high loadings for affiliation, exhibitionism, nurturance and play.

3. *Negative Attitude towards the Environment*, having high loadings of "press" for abasement, adaptability, lack of objectivity and autonomy.

4. *Strong Environmental Control*, having high loadings for deference, deliberation, and order.

A separate factor analysis for 11 schools also showed similar factors. However in some factors 1 and 2 seemed to have merged, which the authors speculated is due to low S-E status leading to general complaints. Other findings of this study suggest that high socio-economic status is certainly no guarantee of an achievement-orientation (Factor 1 high loadings), nor is a weak achievement-orientation an inevitable concomitant of low S-E status of the students in the school. However, S-E status showed significant relationship with factor 2.

3. *Stern's Indices*

Stern, a pioneer researcher in this area has developed a number of indices to measure college and other institutional environments. Besides the High School Characteristics Index, are the Activities Index or AI to measure the activities of the college students; CCI or College Characteristics Index to measure environmental variables (Stern, 1963, 1965); the Organizational Climate Index or OCI (Stern, 1963); and the Evening College Characteristics Index or ECI (Stern, 1961). Of these indices the well-known ones are the AI and CCI. While the AI reflects the student needs, the CCI reflects the environmental "press" of the college and with these instruments and Murray's motivational theories, Stern attempted to study the "need-press" interaction in the American Colleges.

Both CCI and AI consist of 300 yes/no-type items each of which the students are required to answer. The items of CCI refer to specific campus activities like laboratory facilities, athletic programmes, dormitory characteristics, political organizations, course requirements,

etc. There are 39 seats of such items. Intercorrelations obtained from 1,076 students of 23 colleges gave the following 11 first-order factors: 1. Aspiration level (consisting of counteraction, change, fantasied achievement, and understanding); 2. Intellectual climate (consisting of reflectiveness, humanities-social sciences, sensuality, understanding; and fantasied achievement); 3. Student dignity (consisting of objectivity, assurance and tolerance); 4. Academic climate (consisting of humanities-social sciences, and science); 5. Academic achievement (consisting of achievement, energy, understanding, counteraction, and conjunctivity); 6. Self-expression (consisting of ego-achievement, emotionality, exhibitionism, and energy); Group life (consisting of affiliation, supplication, nurturance and adaptiveness); 8. Academic organization (consisting of blame avoidance, order, conjunctivity, deliberation, defence and narcissism); 9 Social form (consisting of narcissism, nurturance, adaptiveness, dominance and play); 10. Play (consisting of sexuality, risk-taking, play and impulsiveness); and 11. Vocational climate (consisting of practicalness, puritanism, deference, order and adaptiveness). Two second-order factors merged are on the intellectual-non-intellectual dimensions. The twelve need-factors that emerged out of Activities Index include self-assertion, audacity-timidity, intellectual interests, motivation, applied interests, orderliness, submissiveness, closeness, sensuousness, expressive-constraint and egoism diffidence. These factors were found to be intercorrelated circularly and defined by three second-order factors—intellectual orientation, dependency needs and emotional expression.

4. *The Protest Scales*

Peterson's Protest Scales (Peterson, 1966) attempt to measure various protest issues on the campus. The scales include 27 issues. In a study by Peterson (1966), the reported intensity of protest stemming from each of 27 issues was weighed from 1 through 4 ('no protest' through repeated and prolonged protest). Correlations between the 27 protests yielded 6 factors: quality of instruction, faculty affairs, administrative paternalism, political extremist visitors, civil rights and U.S. militarism.

5. *Medical College Environmental Scales*

Medical School Environment Inventory or MSEI by Hutchins, (1962) is an instrument to measure the environment of the medical colleges. This is a 69-item inventory consisting of the following scales: (i) General Esteem, (ii) Academic Enthusiasm, (iii) Extrinsic Motivation, (iv) Breadth of Interest, (v) Intrinsic Motivation, and (vi) Encapsulated Training. This inventory is an extension of the environmental scales developed by Pace and Stern, Astin, Thistlethwaite, and Halpin and Croft, to medicine and has internal consistency coefficients ranging from .88 to .99.

6. *The Environmental Assessment Technique*

EAT or the Environmental Assessment Technique is another technique developed by Astin and Holland (1961) and attempts to assess the college environment in terms of eight characteristics of the student body: its size, average intelligence, and six personal orientations—Realistic, Intellectual, Social, Conventional, Enterprising and Artistic. These variables were found to be moderately correlated with CCI and CUES, and predict the "effects" of the college as reported by the student (Astin, 1963).

7. *Factor Analysis of Characteristics*

Astin (1962, 1965 a,) and Richards *et al* (1966) have described the college environments in another way by factor-analysing the college characteristics. Astin (1965) has pointed out to another way of viewing the college environments as simply a set of potential stimuli, or "observable characteristics of the college that are capable of changing the sensory input to the student attending the college." Richards (1968) has factor-analysed 28 characteristics of 100 American and Canadian medical colleges. The four factors observed are:

    1. *Factor A*, with high loadings of many out-of-state students, high tuition, more applications than admissions, privately or religiously controlled, and most of the students who have completed four years of college.

2. *Factor B,* with the most important characteristics of the high scoring college. As that it is located in Canada, it requires neither MCAT nor interview, but requires higher that average number of hours in physics, and has a high number of teaching-hospital beds relative to its enrolment.

3. *Factor C,* colleges having loading of this factor describe a college with large number of students, graduate degree candidates, and post-doctoral students, and is located in a large community having relatively large financial aid.

4. *Factor D,* with colleges having loading of this factor having a large number of interns, residents, and teaching-hospital beds relative to number of medical students, and requires large credits in biology and chemistry.

Factors A, B, C and D are named as Affluence, Canadian vs. U.S. Admission Practices, Size, and Emphasis on Hospital Training respectively.

8. *The Learning Environment Inventory*

The Learning Environment Inventory or LEI developed by Anderson (1970) describes the classroom climate along 14 dimensions or scales. Each scale contains seven items, selected by factor analysis, which are statements descriptive of typical high school classes. The respondents expresses agreement or disagreement with each item on a four-point scale. For each of the 14 dimensions, the mean response on the seven items is calculated and the mean of all the ratings in each class provides the estimate of the collective student perception of their classroom climate. The 14 scales of LEI are: 1. Intimacy, 2. Diversity, 3. Formality, 4. Speed, 5. Environment, 6. Friction, 7. Goal direction, 8. Favouritism, 9. Difficulty, 10. Apathy, 11. Democratic, 12. Cliqueness, 13. Satisfaction, and 14. Disorganization.

9. *The Pupil Activity Inventory*

The Pupil Activity Inventory or PAI is another inventory developed by Anderson (1970) which is a 16-itemed instrument to measure the frequency with which pupils engage in a number of science-related

activities such as reading about science, visting museums and pro-
gramme about science on television.

10. *Experience Questionnaire*

The Experience of College Questionnaire is another questionnaire
which has been used to measure the student-faculty relations in col-
leges (Chickering, 1969).

11. *College Satisfaction Index*

Another instrument developed in these lines but named different-
ly is the College Satisfaction Index or C.S.I. This was originally deve-
loped by Roy (1949) and modified and used by Gamelin (1953). It
consists of nine sections with 27 items concerning the satisfaction with
nine areas: curriculum, instructors, social life on the campus, profes-
sional counselling, faculty advising, opportunities for cultural develop-
ment, health service, living quarters, and college in general. Three res-
ponses are elicited from the student on each section. First the student
indicates how much he liked that aspect of the university; next he in-
dicates how much of the time he felt satisfied with that aspect. Final-
ly, he responds in terms of his attitude towards changing that aspect.

12. *School Survey*

The School Survey is an inventory covering significant elements of
the teacher's work environment. It consists of 125 items arranged into
14 categories, after extensive reviews and analysis (Coughlan *et al*,
1964, 1970). The factors that were obtained through this survey in-
clude factors related to administrative operations (Board functioning,
system administration, work load, materials and equipment, building
and facilities); factors related to working relationships (principal rela-
tions, college relations, community relations); factors related to school
effectiveness (instructional programme, student development); and
factors related to career fulfilment (performance appraisal, financial
incentives, professional autonomy).

13. *The Tape*

The Transactional Analysis of Personality and Environment or TAPE does not treat the environment and the self separately as do Stern's indices. This questionnaire makes use of the Semantic Differential Technique. Pervin (1967) used this instrument in studying the relationship between self-environment similarly and satisfaction with the environment. The concepts of self-college, and ideal-self were rated on 52 polar adjective scales, and satisfaction with the environment was indicated on five scales.

14. *The Organizational Climate Questionnaire*

The Organizational Climate Descriptive Questionnaire or OCDQ by Halpin and Croft (1963) attempts to measure the climate of institutions on eight scales. The first four of the scales pertain to the group characteristics while the rest measure the characteristics of the head of the institution. The dimensions measured by the sub-tests are: disengagement, hindrance, esprit, intimacy, aloofness, production emphasis, thrust and consideration. This test has been used in India by Sharma (1968, 1969) and Bayti (1970) in measuring the organizational climate of schools.

15. *Description Instruments*

The Teacher Description Instrument or TDI to measure the teacher behaviours can also be considered as an environmental scale as it aims at describing teacher behaviour. The instrument consists of 147 items+3 items to test criterion variables. A five-point scale to rate the frequency of occurrence of each behaviour is used in this instrument (Deshpande *et al*, 1970). This instrument has been used on 674 undergraduate students who rated 32 of their regular classroom teachers. When factor-analysed, 14 meaningful dimensions were obtained: motivation, rapport, structure, clarity, content mastery, overload, evaluation, use of teaching aids, instructional skill, teaching styles, encouragement, individual assistance, interaction and text adherence.

16. *Phenomenal-Self and Phenomenal Environment Scales*

A notable and recent deviation in the environmental assessment

techniques is perhaps viewing the environment as a part of phenomenal-self. Such an environment, existing in the phenomenal-self of the individual has been named by Kubiniec (1970) as Phenomenal environment. The techniques described so far can be grouped into those which take into consideration the objective characteristics of the environment and those which measure the Subjective Perceptions of the Environment. Kubiniec, starting with the assumption that it is not the objective environment which matters, but it is how the individual sees and interprets the environment, has used the term "Phenomenal Environment." Kubiniec's Phenomenal Environment scales assesses 4 characteristics of the environment (Studying, Reading, Learning and College degree), each characteristics being rated by 15 semantic concepts (on a semantic differential) grouped under three dimensions:

1. *Evaluative* consisting of good-bad; useful-useless, important-unimportant; interesting-boring; and enjoyable;
2. *Potency* consisting of strong-weak, serious-humorous; masculine-feminine; severe-lenient, and rugged-delicate; and
3. *Activity* consisting of active-passive, excitable-calm, complex-simple; tense-relaxed and energetic-lethargic.

17. *Organizational Climate Questionnaire in Industries*

In 1968 an attempt has been made by the author of this article to measure the organizational climate of the small industries. A review of the studies in Industrial Psychology has revealed that these studies aimed at correlating one or other of the variables like Job-satisfaction, Job-security, wages, working conditions, communication patterns, etc., with productivity; but attempts have not been made to study all the organizational variables simultaneously. The organizational climate Questionnaire was developed with an intention to study whether organizational climate of industries can be treated as a multi-dimensional variable that could be measured. This Questionnaire consists of 23 likert type questions to measure the organizational climate on 19 dimensions (Rao, 1968, and 1969). A questionnaire to measure the Job-satisfaction in small industries (attempts to study the satisfaction of industrial workers with a few more variables) has also been developed (Harigopal, 1968); and perhaps can be taken as

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an indirect measure of industrial climate.

RESEARCH OF INSTITUTIONAL ENVIRONMENT

Research aimed at identifying the institutional environment dates back to the 1930's when the first studies by Prentice and Kunkel (1930, 1931) appeared. These studies aimed at identifying the college environments that are effective in stimulating achievement motivation in the students. After these studies, only a few researches were conducted on the institutional environments till the 1960's. Whatever studies have been conducted till the 1960's usually centred round measuring the influence of college or institutional environments on the productivity of the students or the institutional members. Since the 1960's, the interest in this topic has widened and researchers got interested in studying the influence of the institutional environments on various personality and other variables. besides the productivity or the achievement variables. A few of the researches conducted in the past few years on various aspects relating to the institutional environments have been described below to give an idea of the trends.

1. *Influence of Institutional Environments on
   Student Achievement and Learning*

Studies relating to the influence of environment on the achievement of students are also known as "College Productivity Analysis Studies." They started with a design for identifying the characteristics of institutions which have produced students who obtained scholarly recognition later or showed some distinction or the other. Perhaps the best known study in this direction is that of Knapp and Goodrich (1952) in which colleges were compared with respect to the outputs of their alumni who later earned the Ph.D. degree. Other investigators who have reported studies conforming to this strategy include: Kunkel and Prentice (1939), Kunkel (1941), Visher (1947), Taxler (1957), Thistlethwaite (1959, 1959 a), Astin (1961, 1962, 1965), Nichols (1965), Astin and Panos (1966), and Skager, Holland and Braskamp (1966). One shortcoming that has been repeatedly pointed out in these studies is the lack of comparability of the entering abili-

ties of the students. The observed differences among the productivity of students may not reflect the influence of the environment of the institution, but may only be reflecting the nature of students that join that particular college. Recently attempts have been made to control or match students on their entering abilities and see if different environments have changed their abilities to any significant level. Irrespective of some of the weaknesses involved in the recent studies the findings are often interesting. McDill *et al* (1967) have attempted to assess the influence of different pedagogical and social dimensions of school environment on achievement of the students while controlling the relevant personal variables. The analysis revealed that the effect of the socio-economic context of the school on individual achievement tends to disappear when personal variables are controlled. However, even when both the schools' socio-economic context and personal attributes were held constant, the various dimensions of school environment had significant effect on students' performance. These results indicated that when intellectualism, achievement, and competition are stressed by faculty and students it conduces to higher achievement. Gottheil *et al* (1968) in their study of 157 medical students on Stern's CCI and ratings by their teachers on their behaviour towards the patients found that 28 of the 30 CCI scales were significantly related to the ratings of their behaviour towards patients. Students who perceived the school as encouraging understanding, reflectiveness, ambition, socio-political participation, emotional expression, spontaneity, aesthetic appreciation, risk-taking, non-conformity, and reliance on others were rated as having a high regard for their patients and being sensitive to their needs. Hinton (1968) in a study of the effect of environmental frustration on creative problem-solving concluded that the environmental frustration significantly reduced creative problem solving.

Welberg and Anderson's (1968) study on classroom climate considered the relationships between the individual pupil perceptions of their class and their individual learning. A series of studies on high school physics classes throughout the nation had shown that measures of student perceptions of classroom climate, obtained at midyear, predicted gains in cognitive, affective, and behavioural learning criteria during the year.

Sharma (1969) administered Halpin and Croft's Organizational

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Climate Descriptive Questionnaire to 626 teachers from 56 schools. Organizational climate was found to be related to the achievement of boys. The correlation coefficients of different factors of OCDQ with achievement are: Disengagement, —.67; Hindrance, —.33; Espirit, +.59; Intimacy, +.25; Aloofness, —.46; Production Emphasis, +.21; Thrust, +.58; and Consideration, +.44. Using the Learning Environment Inventory, Anderson (1970) has found that the factor Intimacy is positively related to scores on Test Understanding Science (TOUS) for girls of high ability and negatively for girls of low ability. Intimacy indicates anormative behaviour system developed in girls which affects their achievement. Due to the norms developed in low-ability girls, they collectively do poorly on the test. The Environment scale of the LEI showed a positive relationship with Physics Achievement Test (PAT) and TOUS for males. The Favouritism scale showed a negative relationship with learning as measured by the Science Process Inventory. No relationship was found between Satisfaction and learning, while scores on Disorganization were positively related to scores on PAT for males. Kubiniec (1970) in his study of 468 students, divided them into four groups on the basis of their achievement and assessed the phenomenal-self as well as phenomenal-environment perceptions of these students. From his research he concluded that academic success in college can be predicted by measures of global perceptions of one's self and one's environment. One novelty in Kubiniec's study is to treat the perception of environment as a part of self-perception. Perhaps this falls in line with the personality-environment or need-press interaction outlook started by Stern. Another suggestion worth noting made by Kubiniec is to differentiate between evaluating the environment and describing the environment. Other recent studies in this area include those by Alder (1969), Anderson (1969, 1970), Anderson and Welberg (1968), Anderson, Wilberg and Welch (1969), Andrews (1967), Astin (1963 c), Haefner (1968), Kallick (1967), Kramer *et al* (1968), Meyers (1967), Reiner (1970), Spuhler (1967), Voss (1967), and Welberg (1968, 1969, 1969 a, 1969 b, 1970)

The studies indicate mainly two noteworthy points in the environmental research:

    1. That the institutional environment does play a significant

role in determining student achievement, either by direct influence as an independent variable or by indirect influence as an intervening variable.

2. That, as research is growing on this area, the researchers are becoming more and more aware of the need for using sophisticated designs with well-controlled groups in assessing the environmental influences.

2. *Personality and the Institutional Environments*

Research on institutional environments has gone beyond the attempts to find out the effect of institutional environment on the achievement or productivity of the students. Recent researches started testing whether different institutional climates have differential effects on student personalities, and whether the personalities of the students play any role in their perception and interpretation of the environment.

Peyre (1967), while discussing the etiology and development of student maladjustment to an academic environment, argued that adjustment problems of students are associated with those of the institution itself. He suggested a reorientation programme, with cooperation of teachers, psychologists and parents, to solve these problems. King *et al* (1968) in a carefully designed surgical clerkship programme delegating freedom and responsibility to students found that they differed with the control groups on MSEI on a few dimensions favourably. Many of them changed their career choices as a result of this programme and gave up the plan of a solopractice career. A significant increase in the incidence of expected commitment to surgical careers was observed.

Bar-Yam (1969) presented evidence that environmental scales moderate the relationship between personality and learning criteria.

Yonge (1968) has argued that CUES will give different personality correlates in different environments if the relationship betwen individual and the environment is a reciprocal one or two aspects of a whole or Gestalt. Wulberg and Ahlgren (1970) have shown that the classroom climate can be predicted from a number of antecedent and concurrent variables: student personality measures, student scores on

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cognitive and non-cognitive pre-tests, students' biographical characteristics, the course text, the teacher's experience with the course, and the class-size. Eight canonical variables from these several sets of predictors were significantly related to the environment scores; in addition, IQ, and the fraction of girls in the class were found to be significant predictors of environment.

Mitchell (1968) found that perceptions of the environment are related to personality characteristics, particularly the trait of conformity.

Duling (1969) administered CUES to 683 students of Colorado State College. Results showed that women perceived the college as more group-centred, conforming, and cooperative than did the men; married students rated the college higher than single students on awareness, propriety, and scholarship; sorority and fraternity members saw their environment as more practical and group-oriented than did non-members; and transfer-students considered the college to be higher scholastically than did the native students, which is expected because the transfer students usually get transferred to what they consider better colleges.

Other investigators who worked on this aspect of environmental studies include: Astin (1964, 1965), Brown (1967), Eberlein (1968), Eddy (1959), Feldman (1969), Gurin and Katz (1967), Haefner (1968), Hutchins (1962), Jambura (1967), Margulies (1969), McCormick (1967), Nichols (1965), Thistlethwaite (1965, 1966), and Yonge (1968). These investigators touched on the different aspects of the personality as well as the environment and it is too early to conclude anything on the influence of environment on personality or the role of personality in the perception of the environment. A reasonable hypothesis may be that some personality variable (specially the affective variables like the needs, values and emotions) make individuals perceive the environments differently, and such perceptions will in turn influence the same or the other personality variables.

3. *Correlates of Satisfaction with the*
   Institutional Environment

Apart from the job-satisfaction studies which measure the satis-

faction of employees, attempts also have been made to measure the satisfaction of the students (who are products but not employees) with the environment. Two recent studies worth noting in this area are by Pervin (1967) and Berdie et al (1970).

Pervin investigated the relationship between perceived self-environment similarity and satisfaction with the environment. Three hundred and sixty-five subjects responded to one version of the Transactional Analysis of Personality and Environment (TAPE) Questionnaire based on semantic differential. The concepts of self, college, and ideal self were rated on 52 polar adjective scales, and satisfaction with the environment was indicated on five scales. Perceived self-college similarity was related to ratings of satisfaction with the college environment. The research also indicated the usefulness of Semantic Differential for environmental research. Berdie et al in their research on 300 students from six colleges found that graduating seniors on the average expressed mild satisfaction with the curriculum, instructors, social life, cultural development, health services, living quarters and the university in general. The variations in perceptions were low on satisfaction with curriculum, instructors, and college in general. The results suggested that an average student, when graduated from the university, is mildly satisfied with his experiences, neither wildly enthusiastic nor tremendously disappointed. A mild relationship was observed between the number of credits in the university and expressed satisfaction with the university. Expressed satisfaction with curriculum on the student's course of study was related to the number of quarters a student attended the university, the total number of credits completed, the Hy, Ma scores of MMPI, and the family relations, social relations, reality and leadership scales of MCI.

The fewer the semesters attended and the smaller the total number of credits completed, the greater the satisfaction.

The students who expressed the most satisfaction with his curriculum at the time he graduated tended to be the one who spent the least amount of time in college, was required to complete the fewest number of credits, was the most emotionally expressive, had the most satisfying relationship with other people, including family and friends, and was the most "emotionally mature". The more extroverted a student appeared from his personality scores, the more satisfied he

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was with his social life on the campus. The better his relationships with other people and his emotional stability, and the more realistic his approach to life, the greater his expressed satisfaction with the social life on the campus. The more defensive the person and the less trusting of others, the greater his satisfaction with counselling. Persons with the least satisfactory family and home adjustments are the ones who expressed greatest satisfaction with counselling.

In total, the results suggest that to a large extent satisfaction with the university is associated with certain characteristics of students at the time they enter. The multiple and canonical correlations suggest that of the variances in explaining expressed satisfaction with the university at the time of graduation, approximately one-third can be attributed to personality differences observable at the time of entrance. A student's progress in the university is related to his expression of satisfaction at the time of graduation. To a large extent, satisfaction is being formed or developed while the student progresses through college and frustrations resulting from delay, poor grades or failure or inability to register for or complete courses affect satisfaction. The results of this study suggest that the extent to which a student is satisfied with college depends in part on his own history and personality, and in part on the facility with which he obtains his academic objectives, and the services which the university makes available to him. "Perhaps the most significant determinant is the student; the next significant the university and the third most significant, the student's progress."

4. *Other Variables*

Apart from the achievement, personality and satisfaction variables, researches have also been attempted to classify institutions on the basis of the environmental scales or certain other characteristics, such as seeing the kind of students the institutions with different profiles attract, the attrition rates in these colleges, and so on.

Hutchins (1965) in his analysis of the attrition rates in medical schools found that attrition rates were high in tax-supported schools rather than in private institutions. Low attrition-rate schools had shown significantly greater total expenditure than high-attrition schools;

emphasize research; have a larger number of research dollars per faculty member; accept a higher proportion of students from outside their state; and possess environments for learning which intrinsically motivate the students with high scholastic aptitudes, high n achievement, low need for deferent behaviour and high aesthetic and religious values. High-attrition schools were producing a significantly larger proportion of students interested in general and straight speciality practice as opposed to careers having affiliation with academic medicine

Nichols (1966) has presented convincing evidence that institutions with different CUES profiles attract applicants of different ability. For example, he found that relationships between student ability and the scholarship score of CUES were in the high .40s.

Peterson (1966) using protest scales found that the proportion of Ph.D.s on the faculty (considered as a crude measure of institutional quality) was significantly and positively related to protest over all-campus issues. Other investigators who did research in these lines include Altbach (1969), Astin (1963), Sharma (1968, 1969), Bayti (1970), Berreman (1967), Boroff (1962), Boyer (1965), Chickering (1969, 1969 a), Deshpande (1970), Duling (1969), Dunn (1968), Herr (1965), Harvey (1968), Hutchins and Wolins (1963), Hutchins (1965), Kasper (1965), Keniston (1967), Maclean (1967), Martin (1967), Minzey (1967), Mitchell (1968), Moog (1967), Newman (1963), Pace (1958, 1965), Richards (1966, 1968) and Webb (1967). Some of these studies demonstrate the existence of differences in environments of the institutions while others relate such differences to a few other variables, student stress and campus problems.

Another set of studies on environments merely aims at testing the validity of the instruments developed to measure the environments. For example, the College and University Environment Scales have been put to test by a number of investigators.

The adequacy, particularly as regards to the objectivity and representativeness, of the CUES to detect and describe the prevailing atmosphere on the campus was recently tested by Grande and Loveless (1969). The scales were administered to three groups of students. The first was a random, stratified sample of 152 undergraduates (freshmen excluded); the other samples were drawn from the general population of psychology students (two groups—one with 52 and the other

with 58, freshmen excluded). Analysis of the data revealed significant differences in response among the groups, and especially between the two groups of psychology students. Further, it was found that the scales, 'scholarship' and 'community', more accurately reflected group opinion than did the scales, 'awareness' and 'propriety'. Grande and Loveless have questioned the advisability of generalizing the opinions of small groups of students to the institutional climate.

In another study by Sasajima *et al* (1968) CUES did not predict protest concerning campus problems, it was, however, a reasonably good predictor of student protest over off-campus issues.

Mayhew (1969) has presented a significant point of view, that also emerges from some of the environmental researches; that most colleges have little or no demonstrable influence on the students and that the most important force of change seems to be "other students'. Some other studies in this area include those by Pervin (1967 a), Sasajima (1968), Schwab (1969) and Taylor (1968).

Astin (1963) has attempted to validate the EAT. Hutchins (1965), Hutchins and Nonneman (1966), Kubiniec (1969, 1970) and Mitchell (1969) also have attempted to assess the validity and efficiency of some of the environmental assessment methods. In general, there do not seem to be a sufficient number of studies conducted to validate any particular instrument. One answer to this tendency may be that the validity of the environmental assessment methods is not a serious question, as most of these use either direct questions to the students or measure the characteristics of the institutions from the available records which are trustworthy, unlike in the industries. While the latter way of measuring the environments by taking characteristics such as the total number of students enrolled, total number of Ph.D.s in the faculty, funds available, number of research programmes undertaken, etc., does not need any validational studies, the first way of measuring the environments through the perceptions of the students always needs strict validation, especially in view of the fact that the direct questions asked in these questionnaires suffer from the factor of "Social Desirability". by virtue of which there is a tendency on the part of the students to give only desirable responses. Such socially desirable responses are perhaps more common in a set-up like India's where a sense of religious-mindedness, respect for the teacher and sometimes

even the fear of the authorities prevail in the students to a great extent.

5. *Environmental Research in Industries*

While this is the trend of research in educational institutions, there is altogether a different type of interest shown by the researchers working in the industrial set-up. "Organizational Climate" is the term used in the environmental research of the industries. This is rather a new area of research for them. Gilmer (1966) described several studies on organizational climate, each of which concentrated measuring one or a few variables of the organization rather than taking into account all the variables. Nelson (1960) has classified the organizational climate into four types: the bureaucratic, the autocratic, the idiocratic and the democratic. A few investigators like Gilmer (1961) and Dill *et al* (1962) have noted the differences in organizational climates or what they call "Organizational personalities" among the industries. Litterer (1963) has used the term "Ogranizational style" in a manner equivalent to organizational climate, but he did not explore the area fully. Forehand and Gilmer (1964) have pointed out that only recently psychologists have become aware of the importance of studying environmental variation in organizations. They have used the term "Organizational climate" to refer to the set of characteristics that describe the organization, and that (a) distinguish the organization from others, (b) are relatively enduring over time, and (c) influence the behaviour of people in the organization. Forehand and Gilmer say that these characteristics (defining properties) were chosen to focus attention upon features of organizational variations that are amenable to specification, measurement, and incorporation into empirical research. Perhaps this was the first attempt to operationalize this concept, and it assumes that organizations differ in their climates basically. Kahn *et al* (1964) have remarked that "the concept of organizational climate, as its analogical name implies, sums up many of the determining conditions for what things shall grow in organizations and what things be flighted. The vocabulary of organizational variables require this term or its equivalent". (p. 150.) This implies that one must take into consideration all the organizational variables in any study of the organiza-

tional climate. A multidimensional approach in studying the organizational climate has been stressed by Rao (1968) and by Rao *et al* (1969) in studying the organizational climate of small industries. Rao *et al* (1969) have shown that the organizational climate can be treated as a multidimensional variable which follows the normal curve. In their study of the relationship between perception of organizational climate and productivity, no significant relationship was found between the two variables. However, the limitation of the study as regards any valid conclusion is that they took into consideration only a sample of 19 variables to measure the organizational climate, though they stressed that all the variables showed be taken into account. Research in this area is recently gaining momentum in the industrial set-up, but on different lines. Perhaps if productivity studies can establish a definite relationship between the perception of organizational climate and productivity, they can give a number of leads to the educationists. These studies are much easier and do not require very sophisticated designs as in the educational set-up, as industrial organizations and their products are more amenable for measurement and evaluation, unlike the students and their teachers which are complex systems for study.

Implications for Educational Research in India

The entire gamut of socio-psychological researches carried out in the field of environmental effects seem to agree on one aspect: that the nature of institutional environment has significant influence on the gestalt the student carries with him, and how he interprets the situations he comes across. Besides, the role played by the environment seem to be crucial in determining quite a few things like institutional productivity. In spite of the positive demonstrations by the researchers in this area, such research has not found its way to the Indian educational scene so far.

There have been a few training programmes conducted for teachers as well as students to boost up their achievement motivation with the object of achieving higher academic standards. Often, in such training programmes and in the in-service training of the teachers, it is not unusual to hear complaints about resistant heads of the institu-

tions, the bureaucratic atmosphere, the poor working conditions in which they have to work, and so on. The same tendency of complaining is also common in youth-training programmes in which the target is again the administration as well as the teachers. Mainly, the environmental studies should take into consideration the faculty's perception of the administration, students, academic atmosphere, work conditions, equipment, and other facilities such as health and play, etc., the students' perception of the above and in addition the faculty. A multidimensional approach to the environment viewing it as a conglomeration of variables rather than a few variables is needed. Environmental research may help the Indian educationists in understanding, predicting and controlling some critical incidents in education. Differences in perception of the environment by teachers and students may reveal that student-teacher conflicts exist on certain issues; or may hint at the likelihood of student unrest in the campus. Measurement of the perceptions of the environment by the students from time to time and keeping a proper record of the scores may reveal some of the spurts in the student perceptions and may caution the authorities whenever there is a trend pointing to some undesirable changes. For example, if the scores on intellectualism in the climate are going down from time to time, this is something for the educational administrator to take note of and make the needed changes to boost it up. Similarly, by keeping the satisfaction records of students as well as teachers of an institution one may see whenever there is a decline and take precautions lest unrest may set in. Modification or control of the environment is not altogether impossible. In fact, it is perhaps easier to bring about changes in the environment than to modify behaviour. Some of the causes of student stress and unrest seem to follow directly from the incongruency between student desires and expectations which do not tally with institutional realities. By understanding the expectations and by measuring the percieved realities through environmental studies as Brown (1967) has argued, perhaps it is possible to devise a variety of environments that will help rather than hinder the emotional and intellectual development of the students. While motivation training programmes go a long way in provoking the individual to do active work, environmental studies are needed to measure and change the environment to suit the needs of a

motivated individual. Otherwise the training programmes meant for motivating will only help to frustrate the motivated individual.

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T. Venkateswara Rao is Assistant Professor of Education and Training at the National Institute of Health Administration and Education, New Delhi.

The Role of Education in Modernization of Two Tribes of Chotanagpur [1]

L. R. N. Srivastava

This study was undertaken to find out the role of education in the modernization of two tribes of Bihar—the Munda and the Oraon. The findings reveal that the educated tribesmen, as compared to the uneducated ones, are more mobile spatially, occupationally and socially. Their emphatic capacity has increased and they are capable of choosing new individuals, roles and situations, and partcipating in socio-economic and political activities. Education has also made the tribesmen more competent to take interest in public matters and to express opinions thereon.

Before discussing the role of education in modernization of the two tribes it would be desirable to define what modernization and education mean for the purpose of this study.

While defining modernization, it is necessary to take into account the definition of tradition also because both are interlinked. One cannot discuss either in isolation. "Tradition means habits, customs, attitudes, ways of life which get embodied in institutions and then tend to get frozen because of the stability and autonomous existence of these institutions. Thus tradition implies age and, with it, a fairly long period of continuity. It also postulates a certain rigidity that

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makes adjustment to changing conditions difficult, if not impossible, without the stimulus of some external forces." (Rao, 1965). It is also "the cumulative heritage of a society which permeates through all levels of social organization, for example, the value system, the social structure and the structure of personality." (Singh, 1965).

"Modernization", on the other hand, "is essentially a process—a movement from a traditional order to certain desired types of techno-logy and associated forms of social structure, value orientation and motivations and norms.... Modernization thus is not just superficial acquisition of some isolated traits and elements characteristic of the more advanced countries. Their selection in a logical order and sequ-ense, and integration into the cultural pattern in a widely ramifying manner is essential. A great deal of value-change is involved, and some significant institutional modifications are essential." (Dube, 1967).

In the words of Rangachari, "Modernity should imply a new set of values.... (and) development of a humanist and rational ap-proach." (Rangachari, 1965). Modernization, for the purpose of this study, can be defined as an integrated and complex whole which consists of mobility, empathy, rational choice of new individuals, roles and situations, socio-economic and political participation, and media of mass communication.

Education

Education in the tribal areas has not shown much progress. The content of education is such that it does not impart any substantial knowledge. Most of the people who attend school at one time or the other discontinue their studies after a few years of schooling. Thus, though they claim to have attended school, their education is not functional. Only those who have had at least seven to eight years of schooling have been able to derive some benefit from their educa-tion. For the purpose of this study those who have had more than five years of schooling have been considered as educated, and those having less than five years of schooling have been considered as un-educated.

Indices of Modernization

Dube, drawing his material from a vast array of data presented by various authors, has given the following indices of modernization: "Empathy; mobility; high participation; interest articulation; interest aggregation; institutionalised political competition; achievement orientation; rational end-means calculation; new attitudes to wealth, work, savings and risk-taking; faith in the desirability and possibility of change; social, economic, and political discipline; and capacity to put off immediate and short-run satisfactions for higher satisfactions in the longer run. (Dube, 1967). But, in view of the limitations in time and resources, it was not possible to study all the above twelve indices of modernization. Therefore, the following five indices were selected for this study: mobility; empathy; rational choice of new individuals, roles and situations; socio-economic and political participation; and media of mass communication.

Purpose of the Study

The tribal societies have been studied from various angles and with different perspectives. But studies in the field of education among them have been very few. The study of the role of education in ushering in socio-economic changes and modernization has not received any attention. There has been no study on this aspect of education in any of the tribal areas of India. The purpose of the present study was to make a beginning in this field and to find out the role of education in modernization of the two numerically dominant tribes of Chotanagpur—the Munda and the Oraon.

Objective of the Paper

The objective of this paper is to show how acquisition of education has made the people geographically, occupationally and socially mobile; enabled them to imagine themselves in the roles and situations of other people, that is, made them empathic; made them competent to choose rationally new individuals, roles and situations; made them participants in the social, economic and political affairs of not only

their villages but of the country; and has exposed them to the various media of mass communication. The educated, with the acquisition of these attributes, are moving from a traditional to a modern society. The uneducated, on the other hand, lack all these attributes of modernization. They are still anchored to their traditional moorings and do not show any sign of moving towards modernization.

The Sample Area

The area of study was Ranchi district in the Chotanagpur division of Bihar. It is one of the predominantly tribal districts of Chotanagpur with 61.6 per cent tribal population. 73.95 per cent and 76.83 per cent of the total population of the Munda and the Oraon in Bihar is concentrated in this district. So Ranchi was selected for this study.

In the district of Ranchi the Munda are heavily concentrated in Khunti sub-division and the Oraon in Gumla sub-division. Therefore a sampling of these two sub-divisions was made.

In the Khunti sub-division three villages, Kadma, Anigara and Sembhukel, and in Gumla sub-division also three villages, Chainpur, Bindaura and Kurkel, were selected.

The Sample Tribes

The Munda and the Oraon are two numerically predominant and somewhat developed tribes of Chotanagpur. They live in contiguous areas but speak two different dialects of two different families of languages. The Mundas are the earliest settlers of the Chotanagpur plateau. The Oraon having migrated from Konkan came to Chotanagpur and settled there much later. Both the tribes are settled agriculturists and live in identical ecological conditions. Their material culture is very simple and, at times, they live together in the same village. Educationally also, both of them are at par. In Bihar the percentage of literacy among the Munda is 13.81 per cent, and among the Oraon, 12.69 per cent. The literacy in the sample villages is 27.40 per cent among the Munda and 27.14 per cent among the Oraon. The respondents of the two tribes gave almost identical responses to the questions

on the various indices of modernization. The findings of this study, therefore, may be taken to be applicable to both of them unless otherwise mentioned.

The Sample Respondents

Most of the undergraduate Munda and Oraon students reading in colleges of Ranchi, Khunti and Gumla were selected for the study. From Ranchi were selected both Munda and Oraon students; from Khunti, Munda, and from Gumla, Oraon students. A total of 140 Munda and 116 Oraon students were selected.

Further, two groups of adult respondents, both educated and uneducated, from the Munda and the Oraon were selected. The first group comprised 20 per cent Munda and Oraon adults from the six sample villages. This came to a total of 18 Munda and 40 Oraon adults. Out of the 18 Munda respondents, seven were educated and 11 uneducated, whereas, out of the 40 Oraon respondents nine were educated and 31 uneducated. In the second group, there were 18 educated and 20 uneducated Munda, and 17 educated and 33 uneducated Oraon, that is, a total of 88 respondents. Case histories were collected from the latter group of respondents. Thus, in all, 196 Munda and 206 Oraon respondents were selected for this study.

Tools and Techniques

Interview schedules and questionnaire containing questions on the various indices of modernization were administered to college students and educated adults from the sample villages.

Besides, case histories were collected from 88 educated and uneducated adults from the sample villages.

Participant and non-participant observations were also made to collect relevant data.

Most of the primary data on mobility, empathy, rational choice of new individuals and roles, participation, and media of mass communication were collected with the help of these tools. Some of the data collected were cross-checked with published reports, gazetteers, and other records.

FINDINGS

Mobility

Ever since the advent of education to these tribal areas there has invariably been social mobility among them, as we will presently see. Traditionally accepted social positions are no longer secure and education is rapidly becoming an instrument, stronger than any other traditionally instrument, for attaining social mobility. Education is also gradually replacing other resources of attaining mobility. "Education is now the most important agency whereby a young man with ability but limited resources can rise from the class of his parents." (Merrill, 1961). Another reason of education leading to social mobility is the social image formed in the minds of the uneducated tribesmen. They have associated education with high position in society, great wealth, power, prestige and the capacity of earning money without doing any manual labour. An illiterate cultivator cannot think of identifying himself with that image.

Traditional social institutions in tribal Chotanagpur, as they are, afford very little opportunity for any spatial and social mobility. They ordain that men should conform to their traditional occupations, follow and obey the codes of behaviour prescribed by the institutions, and remain attached to the soil. By going to urban areas men are considered to have been spoilt by picking up the vices from the scum of the urban communities. But an educated young man who reads newspapers, listens to radio, sees films and knows about the world, is aware, and even convinced, that so long he remains immobile in his traditional village he will cultivate his fields for the whole of his life and 'rot'

TABLE 1

Geographical Mobility

Orbit of Mobility	Educated N=30	Uneducated N=58
Not gone outside the village	0.0	5 (8·6)
Gone outside the village	9 (30·0)	36 (62·1)
Gone outside the State	21 (70·0)	17 (29·3)

there. His soul rebels at these constrictive injunctions imposed by his society and he makes every endeavour to free himself from this suffocating atmosphere and run away to the freer environment of the town where he is unconcerned with these injunctions, where lack permitting he finds a satisfaction of his desire for upward social mobility which in his traditional village he is incapable of getting.

Though both the educated and uneducated are mobile, yet the orbit of mobility of the educated is much greater than that of the uneducated. As much as 70% of the educated have gone outside the state while only 29% of the uneducated have done so.

Since the educated are now spatially mobile, they go for urban professions and thus are occupationally more mobile than their illiterate parents and counterparts. People, in general, also consider that the proper place of the educated persons is in town where they can get suitable jobs. The parents have now a clear conception of the hierarchy of occupations available in the towns generally accepted by the society. A parent considers it a waste of time and money if an educated son returns to the village to cultivate land. But such a parent is perhaps not destined to see such a gloomy day. He is going to be spared such an ignominious situation, for, his educated son himself abhors cultivation.

Occupational Mobility

Educaton has led to a shift in the occupation of the Munda and the Oraon. The traditional occupation of these tribes is agriculture. But the educated section of the tribe does find this occupation satisfying. Men, and even women, who have received even middle school education are constantly mobile in search of occupations other than agriculture. An educated young man now prefers to do a menial's job than to cultivate his land. Education has come to be associated with urban occupation which means urban residence. Even the parents do not like their educated children to continue to till the soil after getting education. They consider it as waste of time and money spent on their children's education.

The respondents attached different values to different occupations. Many of them correlated cultivation with illiteracy. Respondent

after respondent said, "Those who are illiterate will have to depend on agriculture", and "The educated people feel shy and are ashamed of cultivating their land and tending their cattle because these work are not prestigious." Those educated young men who could not get any job in town and continued with their cultivation were looked down upon. The respondents also related lower standards of education with petty jobs and higher standards of education with respectable and well-paid jobs. A parent whose son has passed only higher secondary examination would be satisfied with 'any job in the town,' whereas one whose son is highly educated would like him to become a doctor, or engineer or lawyer. For the people the educational-occupational relation is fairly established and accepted. And when one moves from rural to urban professions the society undoubtedly considers one occupationally mobile.

Social Mobility

Socially also an educated Munda or Oraon is more mobile than his uneducated parents or counterparts. Due to education and the consequent occupational mobility he is able to achieve a tolerably good social status in the eyes of his village people. He may or may not be given any social recognition or prestige in the urban areas, where, compared with the permanent non-tribal people, he has not attained the required social norms, but in his own village he is definitely at a place superior to his illiterate fellow-villagers. The more fact of his urban residence, earning cash money, and not doing manual labour, is enough to raise his status image in the eyes of the uneducated villagers.

But social mobility has another aspect also. While trying to be socially mobile, the two tribes are moving away from an ascriptive, established and homogeneous society to an achieving, adaptive and heterogeneous society. In the ascriptive society they remained loyal to the kin and clan groups and were oriented towards a corporate village life. But in the achieving society towards which they are now moving they have to adapt themselves to newer codes of behaviour and ethics.

With the social mobility among the educated has come a desire to acquire cash and use them on modern things. When asked, 'what

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would you do if given Rs. 500?' the educated said that they would buy
a cycle, or a watch and such other things. The uneducated, on the
other hand, were first astonished to hear such a proposition. They
could not say what they would do with the money. When further
pressed they said, they would 'purchase land' or 'just keep it'. Thus
with social mobility have also come various types of socio-economic
changes and changes in the value systems of the two tribes.

Empathy

When an educated Munda or Oraon moves out of his traditional
village, life-ways, and thought-ways, and goes to an urban setting, he
is called upon to re-orient his whole outlook on life. He is to adjust
himself to a new environment and assume newer roles. He has to look
much beyond his traditional constructive sphere and identify himself
with new choices and new situations. This capacity of seeing oneself
in others' situations and roles is defined as empathy. It is "the power
of projecting one's personality into (and so fully comprehending) the
object of contemplation." Empathy is one of the chief characteristics
of a mobile individual and an index of modernization. Empathic con-
ditions and feelings are found only in a modern society.

"Since empathy is an autonomous personality behaviour, it is not
revealed by any census data, but must be elicited through psychologi-
cal testing of individuals." (Lerner, 1962). In order to test the
empathic capacity of the respondents their case histories were collect-
ed, and their attitudes were elicited through them. Projective ques-
tions were also used to elicit their responses.

One of the main characteristics of an uneducated, a tradition-
oriented man is his inability to ask the question why, whereas an edu-
cated individual is quite capable of posing this question to himself and
providing a rational answer.

When asked, "Where would you live if due to some reason you
have to leave your village ?", the educated and uneducated showed a
sharp cleavage in their reaction to the question. To the uneducated
Munda and Oraon the question came as a shock. They were happily
living in the village and, in spite of certain deprivations, had no inten-
tion of leaving it. Almost all of them refused to leave the village of

their ancestors, where they were born and brought up and where—it would only be proper—they ought to die. They could not visualize themselves in an unfamiliar situation. Their moorings in their traditional village were so deep that they were not prepared to move out of it even for a better living. The educated Munda or Oraon, on the other hand, did not show any amazement at the question. They considered it a feasible proposition and were prepared to leave the village mostly for urban areas.

The empathic capacity of the uneducated and educated can be judged from their responses to the above projective question. This is what an uneducated cultivator had to say: "I was born in this village and intend to die here. Where else can I go? I shall live here. Even if I am forced to go elsewhere I cannot go. How can I earn my living at any other place where I have no land? In town I will have to beg for rice."

Compare it with the response of an educated respondent. "I have seen both towns and villages, and I prefer to live in a town because the modern amenities such as library, radio, electricity, school and hospital are available there. If I am to leave my village I will go to a town, find a job and live there."

The uneducated finds it difficult to visualize himself in a different role and situation, whereas the educated is not concerned at leaving his village. He thinks he is capable of adjusting and adapting himself to the new role and situation.

Similarly, the uneducated respondents were not prepared to become a leader at any level. They could not visualize themselves in such unfamiliar and strange roles. They showed a consistent inferiority complex which appeared to be the result of their being uneducated and 'not living in the company of the educated.' The response to the question whether they would like to become the Chief Minister of Bihar showed a sharp cleavage in the empathic capacity of the educated and uneducated respondents. Most of the educated respondents were willing to become the Chief Minister of Bihar. Among the Munda, 65.21% expressed their willingness as against 34.79% who did not. Among the Oraon, 54.46% were willing and 45.54% were not willing.

The responses of the uneducated were drawn from their case his-

tories. They showed positive disinclination to become the Chief Min-
ister of Bihar. Many shuddered at this idea. Many could not even
'think' to be so—not even in their dreams. To some it was a prepos-
terous proposition, others thought it was outrageous, while still others
thought we were joking with them. A cultivator to become a Chief
Minister, impossible ! It was as impossible for them to become the
Chief Minister, as it was for the Chief Minister to become a cultivator.
The educated tribesmen, on the other hand, did not show any surprise
at the possibility of their becoming the Chief Minister of their State.
In fact, some of them considered themselves to be already a leader
of the village. Some even considered themselves better and more suit-
able than some of the present leaders. Many educated respondents
could project their identities into the other object (the Chief Minister).
They showed a much higher empathic capacity which the uneducated
completely lacked.

The projective questions asked to elicit the empathic capacity of
the respondents involved role playing situations. It was found that an
uneducated respondent was not only unprepared to play the roles of
unknown persons in unknown situations but he was also reluctant even
to imagine himself playing those roles. He lacked completely the
psychic mobility so clearly evinced by the educated respondent. He
not only did not show any psychic mobility, he was not even prepared
for physical mobility.

Rationality

A modern society is necessarily rational. Lerner, while discus-
sing the necessity of rationality in a mobile, that is, modern society
says, "A mobile society has to encourage rationality, for the calculus
of choice shapes individual behaviour and conditions its rewards.
People come to see the social future as manipulable rather than ordain-
ed and their personal prespects in terms of achievement rather than
heritage. Rationality is purposive: ways of thinking and acting are
instruments of intention (not articles of faith); men succeed or fail
by the test of what they accomplish (not what they worship). So,
whereas traditional man tended to reject innovation by saying 'It has
never been thus', the contemporary Westerner is more likely to ask

'Does it work?' and try the new way without further ado." (Lerner, 1962).

When a modernizing individual gains mobility he develops the empathic capacity of imagining and identifying himself with new individuals, roles and situations. The new circumstances under which he is placed afford him ample opportunities to develop rationality, and the choice of the new roles that he makes during the process of his modernization are based on rationality and not on any preconceived notions. An uneducated Munda or Oraon works by consensus and in a group situation; and educated by individual opinion and without much regard to traditional kin and clan affiliations.

This difference between the traditional and the modern man in using rationality depends on his education. It is education that makes a man use his rationality. It also sharpens his faculty of reasoning and enables him to examine the various pros and cons of a new idea or situation before accepting it. The uneducated lacks this faculty. An illiterate respondent remarked, "We illiterate are no better than our bullocks. We do not think."

Tables 2 and 3 show how rational or irrational the respondents were in choosing new tools and individuals. The responses again conform to the trend that has emerged in case of other attributes of modernization.

TABLE 2

*Use of New Tools and Implements by Uneducated
Munda and Oraons*

Tribes		Use	Do not use
Munda	N=85	20 (23·5)	65 (76·5)
Oraon	N=126	24 (19·0)	102 (81·0)
Total	N=211	44 (20·8)	167 (79·2)

The above responses were from the uneducated Munda and Oraon. As many as 79.2% did not use new tools and implements. The reasons given by them for not using them were, 'they are bad', 'they are distributed by government', 'they spoil the land', and the like. It is

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obvious that none of the reasons given above is rational.

TABLE 3

Use of Fertilizer by the Educated Munda and Oraon and Reasons for Using It

Use of Fertilizer				Reason for Using It
Tribes	Use	Do not use	Tribes	Gives better yield
Munda N=124	89 (71·77)	35 (28·23)	Munda N= 86	82 (95·35)
Oraon N= 80	73 (91·25)	7 (8.75)	Oraon N= 72	67 (93·05)
Total N=204	162 (79·41)	42 (20.59)	Total N=158	149 (94·3)

The above responses were obtained from the educated respondents who had caused fertilizers to be used in their cultivation fields.

Most of the steps taken for the development of the tribes meet with indifference from the uneducated persons because they do not rationally analyze the respective advantages or disadvantages of the steps taken and innovations introduced. The use of fertilizer in the tribal areas is a case in point. The uneducated villagers do not use it, and for this they give irrational reasons like, 'it spoils the land', 'our cowdung manure is better', 'we cannot afford to buy it every year', and the like. The educated cultivators, on the other hand, not only use it but use it for rational and valid reasons. 94.30% of such educated cultivators who use it do so because it gives better yield.

When people come into contact with new people it is but natural to expect that they would either like or dislike them. If they like them then it would indicate that they want to adjust with them, and if they dislike them there would be an attempt of avoidance. 94.47% of the educated respondents reported that they liked new people whom they met, and they also reported that the new people whom they met also liked them. With mutual liking and adjustments, a sense of universalism thus grows among the educated respondents.

When an educated Munda or Oraon accepts a new idea or situation he does so after using his rationality. He knows and understands why he is doing so. An uneducated person, on the other hand, does not accept a new thing mainly because the same has not been ordained

by his tradition and it did not exist in his culture. An unknown fear haunts his mind as regards accepting any new thing about which he has no knowledge and which he has not tried. Education gets over this psychic gap between the two sets of individuals. The educated, when confronted with new individuals, roles or situations, tries to understand them and make adjustment with them. His education makes him conscious of the fact that in the changing society where new ideas and things are rapidly taking roots he will have to take them sooner or later. The uneducated does not gather courage to face the new individuals, roles or situations. He feels more comfortable when he does not have to face them. But he does so simply because he does not know that it is only self-delusion and he cannot avoid facing the new individuals, roles or situations by not looking at them.

Social Participation

Responses of the educated respondents were elicited through questionnaires regarding their participation in the social affairs of the village or the community. It was seen that most of them did participate in the marriage and death rites of a fellow villager and in other social functions. 88.41% educated Munda and 88.70% educated Oraon respondents did participate in such social functions, as against 11.59% Munda and 11.30% Oraon who did not. The uneducated, on the other hand, were completely indifferent to such participation. On such occasions most of them showed a marked lack of interest in the social activities of the village.

Economic Participation

It was seen that the educated Munda and Oraon took effective part in the programmes of economic development of the village through the agencies of cooperative societies. A large number of educated respondents participated in the working of these societies. 52% Munda, 74% Oraon—that is, a total of 62% educated respondents—participated. The uneducated, on the other hand, did not bother or care about such agencies aimed at economic development of their villages. Many

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of the uneducated Munda and Oraon even did not know that any co-operative society existed in their villages.

Political Participation

An educated Munda or Oraon is also quite conscious and aware of the political rights and responsibilities that are conferred on him. He makes full use of them. He casts his votes for individuals, parties, relatives and persons with whom he has any attachment. He is so much involved in the political affairs of the country that he not only participates in them by exercising his rights of voting, but also wants to have some say in the political affairs. 70.76% of the educated Munda and 60.07% of the educated Oraon respondents reported that they were aware of their voting rights.

The uneducated persons present a contrasting picture. They even do not know what is meant by voting. For many of them it is just an 'order from the government' which they have to obey, for others it is a useless exercise because it does not bring any benefit to them. They are never keenly interested in the political affairs of the village or the state. Their participation is only nominal and half-hearted, and is limited only to the extent of 'dropping the ticket in the box.'

Expressing an Opinion

An educated Munda or Oraon not only participates in the socio-economic and political affairs of the village, state and country, but he also expresses an opinion on these matters. Education has enabled him to judge the various aspects of the affairs affecting the wider public. He holds and expresses opinions on the relative merits and defects of the various socio-political institutions in his society. The uneducated, as usual, is not concerned with matters that do not directly concern him. He is too busy with his cultivation and other means of earning his livelihood to know about matters of public interest, participate in them and have any opinion on them. His lack of participation and his inability to express an opinion tend to confine him to his traditional ways of behaviour. Even when he does not participate in

the social, economic and political affairs of the village and does not hold or express opinions on matters of public interest, he does not try to improve his performance in these fields. There is no motivation for him. He does not wish to rise above his present level.

Media of Mass Communication

The different media of mass communication have been universally regarded as great catalytic agents for bringing about social change and modernization. Except the newspaper, their greatest advantage is that both the enlightened and the ignorant, the highly educated and the illiterate, can derive benefit from them. They bring the most valuable material information. As a respondent said, "The radio brings the whole world to my door." Mass media are also a strong stimulant to the people of a developing country. And this is truer in case of the tribal people under study. Without the mass media people remain inert.

The Munda and the Oraon villages are still equipped with the same traditional means of communication which the inhabitants used hundreds of years ago. News and information still pass through words of mouth. The efforts hitherto made in this direction leave much to be desired. There is hardly any programme for the development of communication channels in their villages. No bulletins, charts, posters depicting policies and programmes of the government could be seen in the villages. Heavy percentage of illiteracy prevents the Munda and the Oraon, like other tribesmen, to go for newspapers. The economic condition of the tribes is not such as to allow them to buy radio sets. Community listening radio sets have never worked well in the village. And the people never get a chance to see film because it is not accessible to them either physically or economically.

The Newspaper

For the purpose of this study only three media of mass communication were studied: the newspaper, the radio and the film. The educated Munda and Oraon are regular readers of newspapers. Table 4 shows the frequency of their reading newspaper. More than half of them read newspapers daily.

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TABLE 4

Frequency of Reading Newspapers

Tribes	Daily	Several Days a Week	Weekly	Occasionally	Rarely
Munda N=135	71 (52·59)	30 (22·22)	15 (11·11)	13 (9·62)	6 (4·46)
Oraon N=110	61 (55·45)	22 (20·00)	9 (8·18)	17 (15·45)	1 (0·92)
Total N=245	132 (53·87)	52 (21·22)	24 (9·79)	30 (12·24)	7 (2·88)

So far as reading or having an interest in newspapers is concerned, the educated and the uneducated persons are poles apart. The educated Munda and Oraon not only read daily, weekly and monthly newspapers and magazines, but also participate in discussions on the various types of news published in them. The advantages they derive are immense. Their interest in newspapers goes beyond the linguistic and national frontiers. Their interests are varied; they read various types of newspapers as given in Table 5.

TABLE 5

Titles of Newspapers Read by the Educated Munda and Oraon

Newspapers	Munda N=116	Oraon N=139	Total N=255
The Indian Nation	100 (71.94)	92 (79.31)	192 (75.29)
The Aryavarta	90 (64.75)	71 (61.21)	161 (63.14)
The Statesman	30 (21.58)	24 (20.69)	54 (21.18)
The Searchlight	15 (10.79)	35 (30.17)	50 (19.61)
The Ranchi Express	12 (8.63)	10 (8.62)	22 (8.63)
The Hindustan Times	9 (9.47)	11 (9.48)	20 (7.84)
The Times of India	9 (6.47)	10 (8.62)	19 (7.45)

Note : Many respondents gave more than one response.

Radio

The reactions of the educated and the uneducated Munda and Oraon respondents were again diametrically opposite with regard to listening to or owning a radio. The former knows all that is to be known about the radio. He is a regular listener. If he does not own a radio he makes it a point to go somewhere else and listen to it. His interest is diverse. He listens to different radio stations and different types of programmes as is evident from Tables 6 and 7.

TABLE 6

Radio Stations Listened to by the Educated Munda and Oraon

Radio Stations	*Munda* *N=83*	*Oraon* *N=91*	*Total* *N=174*
Vividh Bharati	36 (43.37)	52 (57.14)	88 (50.57)
A. I. R., Ranchi	41 (49·40)	45 (49.45)	86 (49.43)
Radio Ceylon	34 (40.96)	48 (52.75)	82 (47.13)
A. I. R., Delhi	26 (31.33)	39 (42·86)	65 (37.36)
B. B. C.	12 (14.46)	10 (10.99)	22 (12.64)

Note : Many respondents gave more than one response.

TABLE 7

Types of Programmes Listened to

Types of Programmes	*Munda* *N=83*	*Oraon* *N=91*	*Total* *N=174*
Film music and songs	39 (46·99)	54 (59·34)	93 (53.45)
News bulletins	25 (30.12)	39 (42.86)	64 (86.78)
Speeches by leaders	29 (34.94)	34 (37.36)	63 (36.21)
Classical music and songs	26 (31.33)	35 (38·46)	61 (55.06)
Political commentaries	20 (24.10)	31 (34.07)	51 (29.31)
Radio newsreel	18 (21.69)	29 (31.87)	47 (27.01)
Debates in Parliament	18 (21.69)	25 (27.47)	43 (24.71)

Note : Many respondents gave more than one response.

An educated Munda or Oraon thus shows all the signs of his exposure to this medium of mass communication. He does not fail to take advantage of it and considers it as a powerful instrument of modernization. The uneducated, on the other hand, is aloof, disinterested and even antagonistic to the radio. He considers it of no use to him as he is a cultivator and an illiterate. What to speak of buying a set, he is not even prepared to take it free of cost. The uneducated Munda and Oraon are not exposed to this medium of mass communication and hence could not be expected to take any advantage from it directly or through those who owned radio sets and listened to the programmes.

The Cinema

The difference between educated and uneducated persons so far as their exposure to films is concerned is enormous. The educated one makes it a point to see films whenever possible and takes advantage from them. He is interested in various types of films and sees educational, social, religious and political films in that order of preference. Table 8 gives the details of his preference for different types of films.

TABLE 8

Types of Film Seen by the Educated Munda and Oraon

Tribes	Educational	Social	Religious	Political
Munda N=140	76 (54.29)	60 (42.86)	29 (20.71)	19 (13.57)
Oraon N=116	69 (59.48)	51 (43.96)	43 (37.07)	21 (18.10)
Total N=256	145 (56.64)	111 (43.36)	72 (28.13)	40 (15.53)

Note : Many respondents gave more than one response.

An educated Munda or Oraon is quite aware and conscious that the film is a useful medium for his as well as for his society's modernization. Though he is also aware of the damaging influence of some

particular types of films, yet he thinks that the educated persons would be capable enough to glean the good qualities of the films and discard the bad ones. The uneducated avoids films as far as possible. It is typical of him to denounce all types of films without ever seeing any of them. His opinion is based on mere hearsay. As he does not see films, he cannot understand how films can be instrumental in his development. But the indiscreet copying of the manners, etiquettes, scenes and dialogues of films by the young men and women has left an undelible imprint on his mind and it is difficult to erase that impression. But it will be in his own interest if he exposes himself to these media of mass communication. This will have a double advantage. An increased exposure will not only take him to the road of modernization but will also make him better aware of the government policies and programmes aimed at his development, as, "Widening of channels of communication will make the rural villagers better aware of the government services that are available to them and will encourage them to play a more active role in their dealings with local, provincial, and national government." (Holmberg, 1960).

Conclusions

It is thus seen how education, itself being an index of modernization, acts as the prime mover of all other indices of modernization and what role it plays in modernizing the Munda and the Oraon individuals and their societies. In the social and economic reconstruction of their societies as a prelude to modernization, it is to be ensured that the people are greatly involved and participate in all such activities which aim at their modernization. For all these education is the most essential prerequisite. It is only with the help of education that the people become aware of their roles in the modernizing processes of their society.

It follows from what has been discussed above that if the Munda and Oraon are to be modernized they need to be given, first, a universal and mass education, the content of which will have to be such as to meet the requirements of modernization. We cannot but agree with the view of the Education Commission, 1964-66, that "To modernise itself, a society has to educate itself. Apart from raising the educa-

tional level of the average citizen, it must try to create an intelligentsia of adequate size and competence, which comes from all strata of society and whose loyalties and aspirations are rooted to the India soil."

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L.R.N. Srivastava is Field Adviser in the Tribal Unit of the Department of Pre-Primary and Primary Education, National Institute of Education, New Delhi.

Predicting Higher Secondary School Success

Atmananda Sharma

Kanta Prasad Garg

The authors report a study undertaken to investigate the prognostic value of middle school examination marks for success at the higher secondary examination. Other purposes were to obtain a prediction formula for streaming students entering the secondary stage, and to establish multiple cut-off scores in meaningful subjects for the three streams. The sample comprised 255 students from Class VIII (1963-64) and the criterion was their higher secondary examination marks (1967). The critical score for predictors was determined by calculating tetrachoric r's for different values of a predictor. The investigators found that the middle school examination marks have no predictive value for the commerce and humanities streams; for science, they are useful to some extent though not very efficient. The authors have worked out a key profile based on achievement scores in the subjects for various streams, which can readily help in the streaming of students.

A student's transition from middle school to higher secondary school is not easy. The hazards range from social and financial

through the administrative, to the intellectual and emotional. They originate in the home and in the school. They are not unconnected with the vagaries of examinations and examiners. Central to these hazards is the problem of student selection/allocation. Each student on entering higher secondary school is called upon to choose one of the four groups, Literary, Scientific, Commercial or Technical, and elect a number of main and subsidiary subjects under the group chosen by him. And though school authorities strive towards a solution, this human problem defies, in the scientific sense, solution. It is a problem that has always been with us and, within some degree, remains with us. It has been brought to public attention by the sudden increase in student numbers, by the large incidence of failures in the external examination at the end of the higher secondary stage, even after changing the entrance requirements occasioned by the introduction of the public middle school examination in Delhi.

In the beginning of the present decade the students achieving high in the middle school examination were admitted to science--mathematics group; in the middle of the decade they were admitted to the science-biology group; and at the close of the decade they are seeking admission to the commerce group. However, this changing emphasis in terms of groups of subjects has little to do with the incidence of failure at the higher secondary examination. In these circumstances it is natural that attention should be centred on the prognostic value of the public middle school examination held by the Directorate of Education, Delhi.

PURPOSE

The major purpose of the study was to investigate the efficiency of marks (achievement measures) obtained in the middle school examination as predictors of higher secondary examination success. Another purpose was to obtain a weighted combination of some or all of the subject marks for a student, which would give the best prediction as to the individual's performance in the higher secondary examination for different streams—Humanities, Science and Commerce. The third purpose was to establish multiple cut-off scores for meaningful achievement tests for each stream.

PROCEDURE

The Sample

The base sample of 521 students reading in Class VIII in 1963-64 in five boys' secondary schools of Delhi, was selected. These five schools had approximately equal enrolment in Class VIII and represented the three levels of efficiency—good, average and below average —as judged from the last three years' results in the higher secondary examination. The sample was therefore as representative as possible.

A large base sample was selected because it gets attenuated as the students move from Classes VIII through XI. As Class VIII is the terminal state of elementary education, some students discontinue school to take up vocational training and some others on pecuniary grounds, but all students who join the Class IX also do not move as a group from one class to another. Those who fail to pass the annual examination are detained; some students migrate to other places due to the transfer of their parents; and some others leave school for want of courses of their choice. Further, a bigger sample could provide flexibility in establishing sub-samples according to courses offered by the students at the higher secondary stage: Humanities, Science and Commerce. Of the total sample in 1967, 255 students appeared at the higher secondary examination conducted by the Central Board of Higher Secondary Education, New Delhi. Of these, 41 were in the Humanities stream, and 138 and 76 students were in the Science and the Commerce streams, respectively. The marks of the Middle School Examination, 1964, and the marks of the Higher Secondary Examination, 1967, were obtained from the examining authorities directly.

Middle School Examination Result

The predictors for this study were the marks obtained in individual subjects as well as the aggregate marks in Middle School Examination of 1964. The maximum marks for the examination were 1,100, of which 200 marks were allotted to English, and 150 marks to each of the six subjects: (i) Hindi, (ii) mathematics, (iii) social studies, (iv) general science, (v) Sanskrit, (vi) drawing/craft. To pass the

examination, a student needed 33% (363) marks, both in the aggregate and in each individual subject offered. A student who passed the middle school examination qualified for admission to Class IX of higher secondary school.

Higher Secondary Examination Result

The criterion chosen for this study was the Higher Secondary Examination result of 1967. The maximum marks for the examination were 800, of which English (200 marks) was compulsory. In the Humanities stream a student was required to offer compulsory Hindi carrying 150 marks and any three from the optionals—history, civics, economics, lower mathematics, Sanskrit, geography, art, each carrying 150 marks.

In the Science stream a student offered physics, chemistry, mathematics and biology (or mechanical drawing), each carrying 150 marks.

In the Commerce stream, a student offered Hindi, commerce, economics and geography or lower mathematics, each carrying 150 marks.

To pass the examination, a student needed 33% (264) marks, both in the aggregate and in each individual subject offered.

In order to obtain an idea as to which tests would be useful in predicting the stream performance and the extent of prediction possible (the latter being the multiple correlation between the selected tests and the stream score) Wherry-Doolitlle's procedure for test selection was followed.

For determining the critical score for the meaningful predictors, the tetrachoric r's were calculated for different values of a predictor, while the criterion score, namely, the aggregate marks in the Higher Secondary Examination, was dichotomized at 33%, the percentage required to pass the examination. The predictor variable score which yielded the maximum value of tetrachoric r was regarded as the critical score for that predictor. The critical score profiles for each stream were drawn.

ANALYSIS

Intercorrelations

The intercorrelations between subject marks achieved in the mid-

dle school examination and the criterion obtained by the use of the Pearson product-moment formula are given in Tables 1, 2 and 3 for Humanities, Science and Commerce streams respectively.

TABLE 1

Correlation Matrix : Humanities Stream

N=41

	Eng.	Hindi	Maths.	Social Studies	General Science	Sanskrit	Drawing	Total	Criterion
English	—	.366	.606	.422	.221	.264	−.004	.668	.177
Hindi		—	.410	.476	.294	.335	.082	.539	.090
Maths.			—	.290	.342	.080	.050	.596	.040
Social Studies				—	.237	.349	.305	.652	.140
General Science					—	.427	.185	.544	−.203
Sanskrit						—	.191	.627	.047
Drawing							—	.472	.143
Total								—	.096
Criterion									—

TABLE 2

Correlation Matrix : Science Stream

N=138

	Eng.	Hindi	Maths.	Social Studies	General Science	Sanskrit	Drawing	Total	Criterion
English	—	.217	.643	.337	.441	.343	−.028	.728	.467*
Hindi		—	.358	.307	.324	.362	.203	.568	.199*
Maths.			—	.353	.401	.246	.101	.742	.349*
Social Studies				—	.538	.546	.330	.565	.139
General Science					—	.557	.375	.638	.138
Sanskrit						—	.427	.613	.245*
Drawing							—	.397	.096
Total								—	.425
Criterion									—

* Significant at 5% level

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TABLE 3
Correlation Matrix : Commerce Stream
N=76

	Eng.	Hindi	Maths.	Social Studies	General Science	Sanskrit	Drawing	Total	Criterion
English	—	.186	.351	.297	.421	.180	.027	.558	.091
Hindi		—	.407	.330	.496	.291	.157	.593	.193
Maths.			—	.291	.525	.240	.081	.680	−.046
Social Studies				—	.500	.368	·142	.611	.143
General Science					—	.555	.315	.855	−.050
Sanskrit						—	.394	.706	.074
Drawing							—	.458	.051
Total								—	.079
Criterion									—

From Table 1, it is noticed that the correlations of predictors with the criterion are low and even two coefficients are negative. Further, none of the coefficients is significant. The middle school examination marks, therefore, did not appear to be of value in predicting success for the Humanities stream of higher secondary education.

From Table 2, it is obvious that the correlations of predictors with the criterion are all positive, and five of them are significant too. English, Hindi, mathematics, general science appeared to be useful in predicting success for the Science stream of higher secondary education. The aggregate of marks obtained in the middle school examination was also predictive of success for the Science stream.

For Commerce stream, the situation was similar to that of the Humanities stream. From Table 3, it is seen that all the correlations with the criterion are low, two are negative, and none of them is significant. The middle school examination marks were, therefore, of little value in predicting success for the Commerce stream of higher secondary education.

Best Predictors

The contribution of tests towards the prediction of higher secondary examination success in the Science stream as also the extent of such prediction in terms of multiple correlation (corrected for sampling errors) is shown in Table 4.

TABLE 4

Multiple Correlation : Science Stream

No. of Predictors	Multiple Correlation	Predictor Added
0	—	—
1	.467	English
2	.474	Aggregate Marks
3	.493	Science
4	.493	Sanskrit

For the Humanities and Commerce streams, multiple correlations were insignificant: hence the middle school examination results were not predictors of success in the higher secondary examination.

Prediction Formulae

Regression equation employing best predictors was worked out for the Science stream only. From this regression equation the predicted achievement score may be obtained for an individual student. The regression equation is given in the standard score and raw score forms below.

Standard Score Form

$$\overline{Z}_{Sc} = 0.588 Z_{Eng} + 0.390 Z_{Agg} + 0.211 Z_{Sc}$$

Raw Score Form

$$\overline{X}_{Sc} = 3.134 X_{Eng} + 0.480 X_{Agg} + 1.276 X_{Sc} - 9.981$$

Selection Of Stream

Any decision for selection of streams by the student is not possible on the basis of the predicted score as the middle school examination marks are not predictive of success in the Humanities and Commerce streams. However, for deciding whether to go into the Science stream or not, a simple procedure will be to find out the percentage of students in the class who fall below the student in question when they are ranked according to the predicted score. If a student obtains a percentile rank of 50 or more, he may choose the Science stream. Students getting a percentile rank below 50 may be advised not to join the Science stream.

MULTIPLE CUT-OFF SCORES

It has been noticed by various investigators[1] that important abilities required for success in a particular work were often omitted from the prediction equation. The key abilities did not appear in the prediction equation because homogeneity of the group on that ability reduced the size of correlation between these test scores and the criterion, and because the method of multiple regression weights permitted the possession of other abilities to compensate for a low amount of crucial ability. As Gaier and Lee point out, the multiple regression technique throws away much information because it yields a composite index. Hence the use of the 'Multiple Cut-off Method', which does not permit such compensation of some abilities for others required by the work, is advocated.

The multiple cut-off method uses norms which are established in terms of minimum scores for each of the significant aptitudes. The cutting scores are set at the point which will provide maximum differentiation between the passing and failing students.

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[1] Donald L. Grant (Ed.). Validity Information Exchange. *Personal Psychol.,* 1955, 8 (1), p. 105; Albert Mapou, Development of General Working Population Norms for the USES General Aptitude Test Battery. *J. Appl. Psychol.,* 1955, 39 (2), 130-133; Eugene L. Gaier and Marilyn C. Lee, Pattern Analysis: The Configural Approach to Predictive Measurement. *Psychol. Bull.,* 1953, 50 (2), 140-148.

The cut-off scores for meaningful predictors, as also the value of tetrachoric *r* for each of them for the three streams are given in Table 5.

TABLE 5

Cut-off Scores and Tetrachoric r for Marks in Different Subjects

S. No.	Subjects	Humanities		Science		Commerce	
		Score	r	Score	r	Score	r
1.	English	41	.00	67	.24	57	.33
2.	Hindi	60	.00	58	.59	61	.77
3.	Mathematics	48	.40	45	.66	43	.34
4.	Social Studies	63	.47	67	.45	46	.41
5.	General Science	54	.04	52	.16	41	.77
6.	Sanskrit	51	.32	44	.66	38	.92
7.	Drawing	44	.39	54	.46	36	89
8.	Aggregate	396	.00	472	.43	353	.72

Streams and Meaningful Subjects

The curriculum for the three streams is as under.

HUMANITIES

Compulsory

1. English

2. A Modern Indian Language (Hindi, Urdu, Punjabi, Bengali, Tamil, Telugu, Gujarati, Marathi or Sindhi)

Optional

1. History

2. Civics

3. Economics

4. Geography

5. Classical Language (Sanskrit, Arabic or Persian)

6. Arts—One of the following :
   (a) Drawing

Compulsory	*Optional*
	(b) Painting
	(c) Music
	7. Mathematics or Mathematics (ordinary level) and Geometrical Drawing or Arithmetic and Domestic Science
	8. Physical Science or Physiology & Hygiene
	9. Domestic Science (for girls only)
	10. Agriculture
	11. Psychology
	12. A Modern Indian Language (Hindi, Urdu, Punjabi, Bengali, Tamil, Telugu, Gujarati, Marathi or Sindhi)

SCIENCE

1. English	1. Physics
2. Mathematics	2. Chemistry
	3. General Biology or Physiology and Hygiene
	4. Agriculture
	5. Drawing (Geometrical and Mechanical)
	6. Domestic Science (for girls only)
	7. Geography
	8. Classical Language (Sanskrit or Arabic or Persian)

COMMERCE

1. English	1. Geography
2. Commerce	2. History
3. Economics	3. Mathematics or Mathematics (ordinary level) and Geometrical Drawing
4. Modern Indian Lanauage	4. Classical Language
	5. Civics

From an analysis of the above curriculum it would appear that the more meaningful subjects for the Humanities stream would appear to be the languages (English, Hindi) and social studies. English, mathematics, general science would, appear to be most meaningful for the Science stream; and English, mathematics and social studies for the Commerce stream. Besides these, the general level of achievement as indicated by aggregate marks is considered meaningful for all the streams.

From Table 5, it would appear that, for some meaningful predictors, the cut-off score which yields maximum tetrachoric r is less than 33% marks, which is the minimum required to pass the middle school examination. Therefore, it is felt that in such cases 33% marks be taken as the required cut-off score. Table 6 shows the cut-off scores for meaningful predictors for the different streams.

TABLE 6

Cut-off Scores for Meaningful Prediction

Subject	Humanities	Science	Commerce
English	66	67	66
Hindi	60		
Mathematics		50	50
Social Studies	63		50
General Science		52	
Aggregate	396	472	363

Achievement Profiles

If the school maintains achievement profiles, then the following profiles made on tracing paper can be superimposed on a student's profile. If the height of column in the meaningful subjects for a stream is lower than the key profile, the student may not be considered suitable for that particular stream. The key profiles for the three streams are shown in the diagram on the following page.
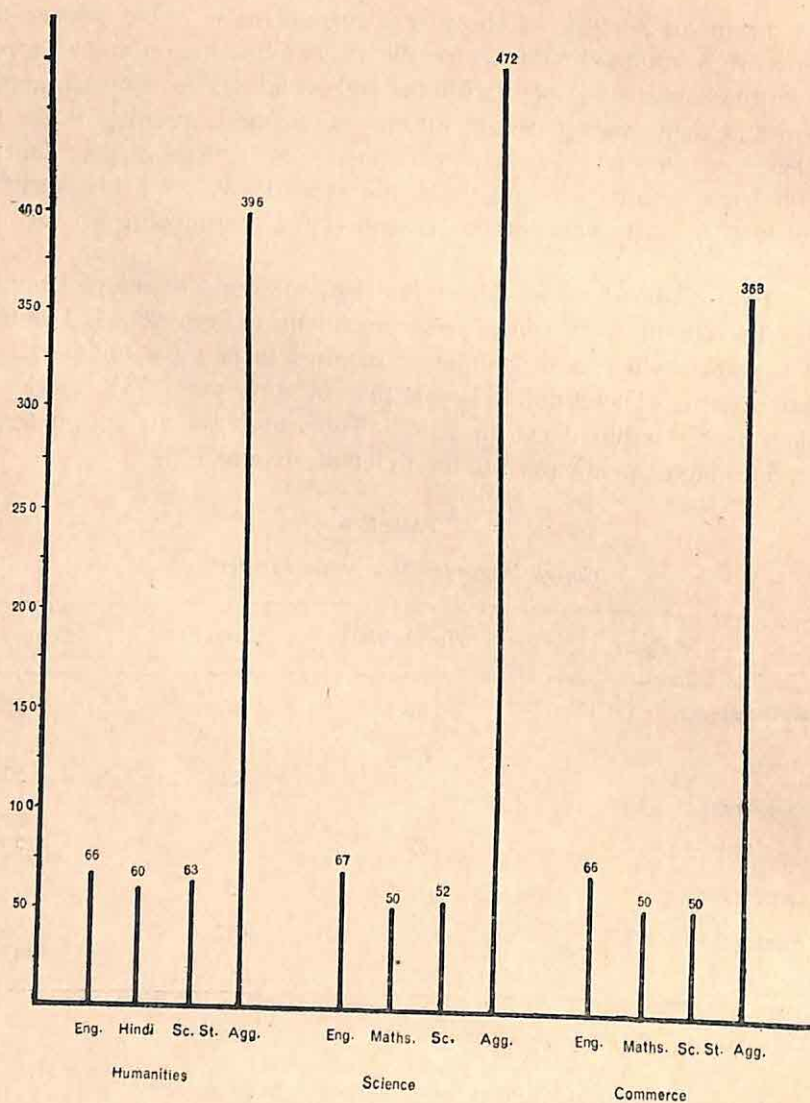
Fig. 1. Achievement Profiles in Raw Scores

From the profiles it is obvious that even when the same subject
has been found meaningful for more than one stream, the minimum

cut-off score for it differs from one stream to another. For example, the aggregate marks for success are in decreasing magnitude, respectively, for Science, Humanities and Commerce. The patterns of predictors for the three streams are different.

Conclusion

It has been observed that the curriculum and the examination at Class VIII level are not predictive of success at the higher secondary level atleast in Commerce and Humanities. They are to some extent predictors of success for Science, but not very efficient ones.

For the curriculum to be more useful for preparing students for higher secondary education and to be predictive of success at the higher secondary stage, it must be broadened at the delta level. Till such time as this is done, the use of psychological tests appears necessary for selecting/allocating students for different streams of higher secondary education, so that all who are admitted to a stream fully utilize the educational resources, thus minimizing wastage. The students will also be saved from frustration resulting from failure due to the selection of courses not suited to their age, aptitude and achievement.

Atmananda Sharma is Reader in the Department of Educational Psychology and Foundations of Education, National Institute of Education, New Delhi.

Kanta Prasad Garg is Technical Assistant in the Department of Educational Psychology and Foundations of Education, National Institute of Education, New Delhi.

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BOOK
REVIEWS

The Nature and Manipulation
of
Achievement Motivation [1]

The Achievement Motive

> Edited by David C. McClelland and others. Van Nostrand, Princeton, 1963.

A Theory of Achievement Motivation

> Edited by J.W. Atkinson and N.T. Feather. John Wiley, New York, 1966.

The Achieving Society

> David C. McClelland. Van Nostrand, Princeton, 1961.

Dreams and Deeds: Achievement Motivation in Nigeria

> Robert A. LeVine. University of Chicago Press, Chicago, 1966.

The Achievement Motive in High School Boys

> Prayag Mehta. National Council of Educational Research & Training, New Delhi, 1969.

Motivating Economic Achievement

> David C. McClelland and David C. Winter. The Free Press, New York, 1969.

In recent years much attention has been devoted by psychologists to the study of motivation, as may be clear from the number of publications in scientific journals and the number of books published on this particular topic. There are distinctly three sets of interests reflected in the various publications on motivation. Experimental psychologists, particularly those interested in animal behaviour, have studied

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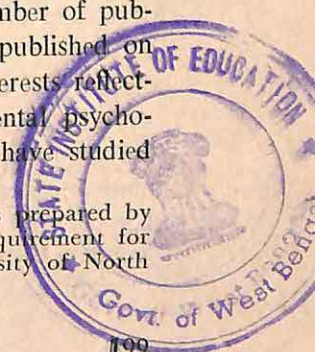
motivation to help explain animal behaviour better, and to systematize the growing knowledge in this field. The other two groups of psychologists have common interests in human motivation. One group of social psychologists are more interested in laboratory experiments and the study of motivation as a problem of behaviour in a controlled, small group situation, while other group of social psychologists has been attracted to the study of motivation in the larger society. Both these groups are interested particularly in the area of achievement motivation.

Achievement motivation has attracted more attention recently than any other aspect of human motivation. As will be clear from the various publications in the scientific journals and the books being reviewed here, achievement motivation has attracted attention both of experimental social psychologists, who are studying motivation in the laboratory, as well as of psychologists who are interested in social change and in influencing motivation. The review of the various recent works is meant to show the trend in the study of achievement motivation in general.

The Beginnings of Achievement Motivation Studies

A group of social psychologists under the leadership of David C. McClelland started work on achievement motivation in the post-war period in the forties. McClelland and his associates developed a method of measuring motivation through the analysis of fantasy material generated by an individual in the form of the stories he or she wrote in response to some pictures selected from the TAT set. The method of scoring the content of achievement motivation in the stories was developed on the basis of arousing achievement motive experimentally and seeing the difference between the stories written by the subjects in the aroused condition and those in the controlled group. After several stories were analysed, a theory for motivation was developed, based on the use of projected fantasy material as reflecting needs or motives or motivation of an individual. *The Achievement Motive* gives the earlier material in this area. The book contains a long chapter called the 'coersive theory of motivation'. This chapter is significant as it summarizes and reviews theories of motivation, and then describes the

theory on which the various experiments in achievement motivation area were conducted. The affective arousal theory is described in detail and then the various motivations are defined, based on this particular theory. Motive is defined as the learned result of pairing cues with affect or the conditions which produce affect. This theory has been used for the various studies described in the book. The book describes studies in arousing achievement motivation and obtaining stories under success and failure conditions. One chapter is devoted to the scheme of analysis of the stories to get at the achievement motivation content. The details of the various categories and subcategories in the scoring system are described with the relevant psychological explanations. This method has now become a standard scoring method for the TAT type of stories written by individuals.

The book also contains studies on the general applicability of the scoring system for achievement motivation and studies on the reliability of the scoring system. Studies on the relationship of achievement motivation and the level of aspiration and other aspects of behaviour are described. The final chapter reviews the studies throwing light on the origins of achievement motivation, the findings suggesting that the origins of achievement motivation are in the childhood period, and that the independence training given by parents through the various methods of child rearing contribute to the development of achievement motivation in the subjects. Three appendices give the illustrated stories from the records of subjects studied, scoring of illustrated stories and description of the eight pictures and two forms of verbal cues used in the various studies.

The book represents the earlier attempts at developing the concept of achievement motivation and the scoring system. Since the publication of the book, work in the field of achievement motivation has advanced a great deal. But this book stands as a landmark in the development of the theory of achievement motivation.

A Theory of Achievement Motivation

What is Achievement Motivation? The theory of achievement motivation is a miniature system applied to a specific context, the domain of achievement-oriented activities which is characterized by the

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fact that the individual is responsible for the outcome (success or failure), he anticipates unambiguous knowledge of results and there is some degree of uncertainty or risk. The theoretical model of achievement orientation presented in Chapter 2 of Atkinson and Feather: *A Theory of Achievement Motivation* is similar in general conceptual approach to the resultant valence theory of level of aspiration proposed by Lewin. Also in the assumption of an inverse relationship between the incentive value of success at a particular activity and the strength of an individual's expectancy of success (as subjective probability of success) at the activity. Yet the model presented by Atkinson differs from traditional model of level of aspiration in the precision of its assumptions, and its emphasis on the role of both relatively general and stable individual differences in personality (motives), and more specific and transient environmental factors (expectations and incentive values) that determine achievement oriented activities. In this latter respect the theory of achievement motivation, which focuses on the interaction of personality and immediate environment—Lewin's famous programmatic equation: $B=f(P.E)$—also differs from several other contemporary conceptions of motivation in which the determinative role of an individual's expectations of the consequences of his actions is of paramount importance.

In the treatment given to the nature of the interaction between stable motives that characterize the personality and immediate situational influences, the theory of achievement motivation represents a step toward conceptual integration of the two disciplines of scientific psychology—one concerned with assessment of individual differences and the other with basic behavioural processes.

Apart from seeking to identify the central thread of work contributing to the evolution of the theory of achievement motivation by bringing together the reports of research, the authors present several explicit applications of the theory to social problems and to place these close to the experimental studies to accentuate the theoretical justification for making the jump from laboratory experiment to the analogous problems in society.

One of the more novel implications of a consistently applied expectancy×value theory of motivation is the notion that the anticipation of a negative consequence should always produce negative motivation,

that is, a tendency to inhibit activity that is expected to produce the negative consequence. This concept was missed in the earlier statement of Atkinson. The conventional notion that anxiety about failure should instigate achievement oriented actions literally blocked appreciation of the new idea generated by the inherent logic of the theory. The first four chapters serve to introduce the theory and relate it to similar theoretical formulations that have risen in such different domains as Edward's decision making Rotter's clinical psychology and social behaviour, Lewin's theory of level of aspirations and Tolman's maze performance of animals.

n *Achievement, Performance, Persistence, and Aspiration.* Some major hypotheses of the theory are examined in studies of the effects of individual differences in *n* Achievement and anxiety on aspiration, performance and persistence in achievement oriented activity. Litwin has investigated the influence of achievement-related motivation on gambling preferences more thoroughly. Litwin develops several different measures of preference for intermediate degree of risk and, in addition, presents evidence concerning a basic assumption of the theory that incentive value of success is a linear inverse function of the subjective probability of success. Persistence can be conceptualized as an interaction of personality dispositions and situational influences. Achievement oriented subjects selected tasks of intermediate difficulty significantly more often than did failure-oriented *Ss*. Achievement oriented *Ss* gave higher probability estimates that did failure oriented *Ss* but not in games where objective cues were present. Estimates of the amount of money that should be awarded as a prize for hitting the target in a Ring Toss Game were interpreted as estimates of valence and shown to be a product of motive and incentive value.

Feather demonstrates differences in the degree to which persons highly motivated to achieve and those anxious about failure persist at an insoluble achievement task in the face of continual failure, as a function of whether they initially believed the task to be easy or difficult.

Moulton presents solid evidence confirming implications of the theory concerning what are traditionally called typical and atypical shifts in aspiration following success and failure. Atkinson's risk taking model predicts that individuals high in fear of failure and low in

need for achievement ($M_{AF} > M_S$) react in an atypical manner to success or failure experiences, i.e., they may raise their level of aspiration following failure and lower it after success. These studies, perhaps more dramatically than the others, illustrate what it means to assert that motivation is the result of interaction between characteristics of personality and immediate environmental influences.

n *Achievement, Vocational Aspiration and Occupation Mobility.* Some studies included in this book concern the applicability of the basic concepts of the theory of achievement motivation to social behaviour and to the question of child-rearing practices. Mahone investigates the relationships between an individual's need to achieve and his anxiety about failure and the realism of his vocational aspiration. Vocational aspiration is considered in the context of theory having to do with motivational determinants of level of aspiration. Persons who are fearful of failure are presumed to be generally avoidant in their behaviour in competitive achievement situations. Such a person would avoid consideration of achievement-related information and he would prefer speculative ventures where his probability of success is quite low (over-aspiration) or safe ventures where his probability of success is quite high (under-aspiration). In contrast, persons who are relatively strong in motivation to achieve success should tend to prefer ventures where the probability of success is intermediate.

Crockett, using extensive national survey data, which included for the first time a thematic apperceptive test of motivation, examines the influence of the strength of the achievement motive on intergenerational occupational mobility in the United States. The theory of achievement motivation shown to be relevant to the study of occupational mobility predicts, that strength of achievement motive—among persons sharing equal opportunity—will be positively associated with upward occupational mobility. Crockett obtained the expected results with regard to upward mobility among persons reared in the lower social strata though predicted relations are not found among persons reared in the middle and upper social strata. Personality variables should be considered in conjunction with social structural variables in the study of occupational mobility.

Morgan, using survey data, considers economic behaviour of individuals in relation to a novel measure of achievement motive suggest-

ed by the theory. Achievement motive and beliefs about the probabilities of hard work being rewarded are related to the economic behaviour of individuals within a culture. Here we see the possibility is then open for international comparisons. The power of such analysis is, of course, far greater than those to which McClelland has largely resorted to, comparing whole countries with one another as to average levels of economic growth and of achievement motivation. However, implications for studies of motives or other factors affecting economic behaviour are that more attention needs to be paid to the lack of symmetry and universality of forces which may none the less be important for major subgroups of society.

n *Achievement and Classroom Problems.* Atkinson, O'Conner and Horner extend interest to another everyday behavioural issue: attempting to motivate school children. They consider implications of the theory of achievement motivation for the educational problem of whether children should be grouped in classes that are homogeneous or heterogeneous in ability. The results of his investigation indicate that placement in homogeneous ability groups does not lead to general enhancement or decline in interest or learning. Rather, motivational dispositions of the individual interact with treatment so that the effect for some students is advantageous and for others disadvantageous. Students high in resultant achievement motivation (i.e., High n Ach and Low Test Anxiety) show greater growth in scholastic achievement and greater interest in school work given the challenge of an ability-grouped class. Those low in resultant achievement motivation (the more anxious subjects) show a decline in interest when placed in the homogeneous ability groups, but no marked difference in scholastic achievement. It would appear that achievement motivation should become one of the more important factors to be considered in determining which students should be assigned to homogeneous ability groups to maximize interest and learning.

n *Achievement and Risk-taking Behaviour.* Brody's study concerned with the effects of n Ach and Text Anxiety on risk-taking behaviour and subjective probability of success in a sequential decision task. The results are in agreement with those of Atkinson and Litwin in that High n Ach-Low Anxiety subjects tend to take intermediate risks when intermediate is defined in terms of the median of the fre-

quency distribution of goal setting behaviours. However, intermediate goal-setting, as measured by confidence statements, does not coincide with the theoretically expected value of ·5. The finding that *n* Ach positively relates to subjective probability of success supports the previous research of Pottharst.

Smith presents evidence concerning two assumptions underlying past research on *n* Achievement: first that achievement imagery in thematic apperception reflects only achievement motivation; second, performance scores of *Ss* high and low in *n* Achievement can be compared on the assumption that the two groups are similar on the average, in all important respects other than achievement motivation. The pattern of results across conditions clearly indicate that as the proportion of overall motivation for performance attributable to achievement incentives increases, the strength of the positive relationship between *n* Achievement and performance increases. The need for standardized conditions for obtaining optimally valid *n* Achievement scores is emphasized. Also called into question is the assumption made in some studies of motivation and performance that extrinsic motives will be uncorrelated with *n* Achievement.

Some Neglected Problems. Bringing to light the neglected factors in studies of achievement-oriented performance, Atkinson and Patricia O'Conner stress the importance of two problems that have been neglected in earlier research on achievement motivation and performance: (a) apparently the incentive value of immediate social approval (the goal of the affiliative motive) is positively related to the difficulty of a task in much the same manner that incentive value of success (the goal of the achievement motive) is related to task difficulty; (b) the summative effects of achievement-related motivation and *n* Affiliation can produce decrements in the achievement-oriented performance of *Ss* who are high in TAT *n* Achievement and low in Test Anxiety.

A Neat Formula. Atkinson in his appraisal of the theory brings out the formula of the resultant achievement-oriented tendency. Achievement-oriented activities are influenced by the resultant of the conflict between the tendency to approach success (T_s) and the tendency to avoid failure (T_{-f}) by remembering that the sign of the tendency to avoid failure is negative, we may designate the resultant-oriented tendency as $T_s + T_{-f}$. The resultant achievement-oriented tendency

$(T_S + T_{-f})$ is positive when $M_S > M_{AF}$ and negative when $M_{AF} > M_S$.

As Edwards pointed out, the whole theory may be simplified algebraically:

$$T_S + T_{-f} = (M_S \times P_S \times I_S) + (M_{AF} \times P_f \times I_f)$$

where T_S is Tendency to approach a task

T_{-f} is Tendency to avoid failure

M_S is Motive to achieve success

M_{AF} is Motive to avoid failure

P_S is Expectancy or probability of success

P_F is Expectancy or probability of failure

I_S is Incentive value of success (same as valence of Lewin,
Utility of Edwards)

I_f is Incentive value of failure

We can simplify the above equation:

$$T_S + T_{-f} = (M_S \times P_S \times I_S) + (M_{AF} \times P_f \times I_f) \quad \ldots\ldots(1)$$

But $I_S = I - P_S$ and $P_f = 1 - P_S$; $I_f = -P_S$ and making these substitutions in Equation 1 we have :

$$T_S + T_{-f} = [M_S \times P_S \times (1 - P_S)]$$
$$+ M_{AF} \times (1 - P_S) \times - P_S]$$
$$= \{M_S \times [P_S \times (1 - P_S)]\}$$
$$- \{M_{AF} \times [(1 - P_S) \times P_S]\}$$
$$= (M_S - M_{AF}) \times [P_S \times (1 - P_S)]$$

The simplification reminds one of Lewin's equation:

$$B = f(P, E)$$

When the resultant achievement-oriented tendency $(T_S + T_{-F})$ is negative, there will be no active impulse to undertake a particular achievement-oriented activity (T_A) unless some positive extrinsic tendency to perform the activity (Text) overcomes the resistance of

$T_S - T_{-F}$: that is,

$$T_A = T_S + T_{-f} + \text{Text}$$

Adding of these components is consistent with the logic of contemporary decision theory.

A Final Word. The papers selected for presentation in this book bring special insight to a new theory of achievement motivation. Each

of these studies is open ended and tells us the conceptual scheme is not yet a settled creed. Apart from elaborating on the general appraisal of the contemporary theory of achievement motivation, the authors identify the implications of this book for a theory of motivation and emphasize some new directions for future research. The final chapter summarizes the theory up to date and gives an excellent description of two types of personalities, namely the Achievement-Oriented Personality and the Failure-Oriented Personality. These descriptions are so vivid and picturesque but at the same time based on scientific research that any condensation will be doing a great injustice to the authors. The passages should be read in original to derive full satisfaction.

Economic Development: n *Achievement* vs. *Other-directerness.* David McClelland states the purpose of his book, *The Achieving Society,* most concisely in his introduction: "What it does try to do is to isolate certain psychological factors and to demonstrate rigorously by quantitative scientific methods that these factors are *generally* important in economic development." Although he believes modern psychology can contribute to the understanding of economic development, he cautions that modern quantitative psychology is young, that the scientific study of motives and values is younger still, and that his book is a first attempt by a psychologist primarily interested in human motivation to interpret the problem of economic development. Despite these cautions, his book is invaluable. He has analysed many disparate economic, historical, social and psychological factors surrounding development and, in doing so, has tried to pull the threads together into an integrated whole. Most important, however, are his efforts to empirically validate his and others' hypotheses about economic development. These efforts set him apart from most other students of economic development who have done little more than present 'logical' or 'reasonable' theories to account for a particular country's economic rise and fall at a particular time.

I feel I must apologise for my own errors of misunderstanding or oversimplification of McClelland's work. These errors seem unavoidable when one tries to present the essence of a work so extensive as his. To lower my margin of error somewhat, I have decided to review his principal argument hat a high need for achievement (*n*

Achievement) is a requirement for economic advancement by tracing the sources of the achievement motivation through the personality characteristics of the entrepreneurs, who promote economic development by organizing business units and by increasing their productive capacity. Next I will look at McClelland's prescriptions for promoting economic development by increasing the *n* Achievement level within a particular country. I will then take up his seemingly unrelated argument that the value attitude of other-directedness must also be increased for economic development to occur and his suggestions for increasing it.

One of McClelland's basic arguments is with the Social Darwinists, including Marx and Freud, who see man as a creature entirely shaped and limited by his environment, including the value attitudes of his society. He tries to show that through his need to achieve, i.e., the achievement motivation, man himself can shape and influence his society and its attitudes. He says:

> If our study of the role of achievement motivation in society does nothing else, perhaps it will serve to redress the balance a little, to see man as a *creator* of his environment, as well as a creature of it. Much of what the Social Darwinists have taught must be thought through again in terms of a new dimension—i.e., the motives of men affected by an environmental change or a social institution....History must be written again, as it was in the 19th Century, at least partly in terms of national character, in terms of what a people is trying to do or is most concerned with.

However, McClelland runs into difficulties with his argument when he discovers that it is the environment, expressing itself through the value attitude of other-directedness, which is as crucial a determinant of economic development as is the achievement motivation.

In the ninth chapter McClelland tries to uncover the intrinsic determinants of the achievement motivation. He notes that the child-rearing practices prevalent in a society produce empirical differences in the *n* Achievement level of children by the age of five. He cites Winterbottom's study which sought to determine at what ages mothers expected their sons to be relatively independent and able to care for themselves. Her findings showed that mothers of sons with high *n* Achievement tend to expect self-reliance at earlier ages and that these mothers also place fewer restrictions than the mothers of sons having low *n* Achievement. Further studies showed that high *n* Achievement

results from early mastery training as long as the training is not a result of authoritarianism or rejection by the parents. McClelland then discusses the influences of parent-child interaction on *n* Achievement levels. On the basis of an experiment, in which both parents were to coach their sons who were engaged in a block-building game blindfolded, he concludes that the parents of children having high *n* Achievement set higher standards of excellence and tended to exhibit more emotional support toward and involvement in their sons' performances than did the parents of the boys with low *n* Achievement. Moreover, there were differences in the effects of the mothers' and fathers' performances. The mothers of the boys with high *n* Achievement were a more dominating influence than the fathers. Thus, McClelland concludes, dominating behaviour promotes the development of high *n* Achievement if it comes from the mother, but it will have the opposite effect if it comes from the father. McClelland summarizes the findings best by saying that 'moderate child-rearing pressures on several dimensions are optimal for producing *n* Achievement."

McClelland next examines extrinsic factors which modify the society's child-rearing practices. He first looks at parental values which are reflected in their religious world views. He notes the crude difference between Catholic and Protestant parents—Protestant parents generally are less authoritarian and they encourage discovery and individuality more in their children than Catholic parents do—but he attributes these differences to the social setting, that is, how much these groups have been assimilated into an achievement-oriented culture. The religious values which McClelland does find positively linked with the child-rearing practices of parents having sons with high *n* Achievement are those which he calls "positive mysticism." Essentially these values represent a reaction against traditional church authority and a reverence for the divine in favour of individual communication with God and a mystical reverence for life. It is at this point, however, that McClelland runs into a fundamental problem which he is never able to resolve: which influence precedes which—individualistic religion or *n* Achievement? He concludes that either factor could precede the other, but that religious views seem most likely to come first since religion "is one of the more stable persistent elements in many societies."

In Chapter Six McClelland describes the characteristics of the entrepreneurs, the major sources of high n Achievement in a society. His findings are based upon experiments involving young boys in risk-taking games of skill and chance and upon direct measurement of their attitudes expressed in structured questionaires. He finds that subjects with high n Achievement are willing to take moderate risks in which the outcome depends upon their skills rather than chance, that they perform energetically and innovatingly only in situations having a moderate challenge, that these individuals feel it is more important to initiate successful actions than to have responsibility only to themselves, and that these people value money extrinsically as a means on concrete feedback of their success.

In the final chapter of his book McClelland prescribes some ways in which the n Achievement levels might be increased, enabling a society to develop more rapidly. The principal ways are to decrease father dominance, to make ideological conversions, to change educational policies, and to reorganize adult fantasy life. Two possible means of decreasing father dominance are by his participation in wars or in occupations, such as sea-faring, which take him away from home. Neither of these possibilities is very realistic, he concludes. However, ideological conversions, whether they represent change from one religion to another (e.g., from Catholicism to Protestantism) or change by protest groups within religions can and do produce higher n Achievement levels as long as their reform zeal persists. Educational changes may help, but they must occur in the crucial period for acquiring n Achievement, between the ages of 5 and 10, and they must be supported by ideological conversions. Finally, a person's n Achievement may be increased by programmes which rework his fantasies as fantasies are not bound to specific situational cues as is overt behaviour.

The most serious problem in McClelland's work is his discovery that the presence of other-directedness, a value attitude imposed by society, is as important to economic development as high n Ahievement. In Chapter Five he tries to determine which value attitudes prevalent in society are important in advancing economic development. He tests nine attitudes commonly associated with economic development by looking for corresponding elements in children's stories from a variety of countries developing more or less rapidly after 1925 and

1950. These attitudes are anti-traditionalism, unversalistic norms rather than particularistic norms for regulating behaviour, the emphasis on specific role relationships, the prevalence of achieved vs. ascribed status, goals posited in terms of the public interest, thrift and asceticism, rationality and planning vs. superstition, an optimistic viewpoint, and an emphasis on material needs. He concludes that but for one major exception these attitudes do not correlate with the rapidly developing countries. The exception is that societies which do develop rapidly have indeed shifted from an impersonal, institutional, traditional orientation to other-directedness where the individual becomes sensitive to the opinion of others. McClelland notes that countries develop fastest which are high in both other-directedness and *n* Achievement, and that the two are not related to each other. He addresses a substantial portion of his final chapter to increasing other-directedness which, like increasing a country's *n* Achievement, will accelerate economic development. He makes very practical prescriptions such as (1) increasing the communications network within a country, including a provision for a free press, which will result in an informed public opinion, (2) emancipating women to influence them by values outside the home since they are the essential link in passing values from one generation to another, (3) revising educational practices to include an emphasis on group activities and participation, and (4) promoting economic policies which draw people to new centres of employment and which encourage them to understand and accept new technology. These suggestions for increasing other-directedness seem, as a whole, to be much more realizable and therefore more valuable than his suggestions for increasing *n* Achievement.

Thus, McClelland weakens his own main thesis—that men with high *n* Achievement will be the entrepreneurs whose activities will lead to a country's economic development—by his discovering a societal value attitude which is equally as important for economic development. This discovery forces him to conclude that *n* Achievement and other-directedness are not related, yet both are necessary conditions for economic advancement of a society. In prescribing for economic development he must devote his attention to both other-directedness as well as *n* Achievement. His prescriptions for the former are much more viable than those for the latter, a fact which he himself

acknowledges. This bifurcation does not lessen the importance of his work, however, for he has demonstrated that economic development is as dependent upon the psychological factor n Achievement as other-directedness and that economic development cannot be explained until the presence of high n Achievement is confirmed by empirical analysis. That n Achievement and other-directedness do not appear to be related may be due to the inadequacies of McClelland's measurements. Perhaps more sophisticated tests will uncover a linking relationship and in doing so will answer the dilemma of the causal relationship—which variable is dependent upon the other, or, are they both dependent upon some factor yet unknown?

Achievement Motivation in Nigeria

We approach the study of motivation to arrive at a better understanding of the factors that influence human activity. We want to answer the question why. In our work with the developing countries today we have become increasingly aware that where certain motivational factors are present in a population, the economy will develop more rapidly. A psychological factor—a drive for excellence or a need to achieve—appears to be related to the entreprenurial activity that most readily organizes factors of production for income.

Why is this so? Are there measurable differences in personality relating to this achievement motivation? Can these differences be measured cross-culturally? What causes the differences? In an attempt to answer some of these questions Robert A. LeVine and his associates studied the three major ethnic groups in Nigeria: the Ibo, the Yoruba, and the Hausa. The results of this study are found in his recent book entitled *Dreams and Deeds: Achievement Motivation in Nigeria.*

LeVine pursues research into the area of why some mothers favour independence training more than others. He analyses the sociocultural development of the Nigerian people and reasons that a primary factor, the status mobility system, may be responsible. The three major tribes in Nigeria have marked differences in the manner through which traditionally it was possible to move from one status to another within their particular societies.

In the Hausa group a man was promoted to higher rank by being a loyal and obedient follower. The emir or ruler of a group insisted upon execution of his orders and rewarded those who obeyed. (And punished severely those who disobeyed). Rewards of patronage went to the most loyal and obedient followers. There was no room for a man with independent ambitions of his own. The Hausa today occupy the northern half of the country and constitute a majority of the total population of Nigeria.

The Ibo reside primarily in the south-eastern portion of Nigeria and have the greatest density of population in the country. They are a highly individualistic people. They have no emirs. They enjoy an open society in which any freeman can attain high status. A premium is placed on occupational skill, enterprise, and initiative. Whereas the Hausa status system was politically oriented, the Ibo system was occupationally oriented. Rewards went to those who worked hard and earned it.

The third major tribe in Nigeria are the Yoruba who occupy the south-western part of the country. In a sense the Yoruba society encompassed elements of both the Hausa and Ibo without the extremes of either. The Yoruba were ruled by obas or chiefs who did not have the control over the society that the Hausa emirs had. Many craft occupations existed that presented an opportunity to excel, and trading offered good opportunities to amass wealth. Hereditary restrictions governing status mobility were, however, much greater than among the Ibo. The net result was that status mobility for the Yoruba was intermediate between the Ibo and the Hausa.

With this background on the peoples of Nigeria we can proceed with the basic hypothesis presented in the book. It is briefly this: status mobility can affect child rearing practices which in turn provide a base for n Achievement motivation which in turn is relevant to economic development.

The fundamental research in the book involves two methods of testing for n Achievement with Nigerian schoolboys as the subjects.

One method is based on testing through the use of written dream reports, the other uses essays which the schoolboys were asked to write. In both methods a new scoring system, based on the McClelland-Atkinson scheme for scoring a story, was devised.

The usual means of testing for *n* Achievement is by an analysis of stories told in reaction to a series of pictures from the TAT. The pictures would, however, present a problem when used in comparative cross-cultural study because the subjects are presented in the clothing, housing, and concepts of a Western culture. In the study three different Nigerian cultures are involved, with none of them based on Western thought or customs. The Hausa, Ibo, and Yoruba differ greatly in clothing styles for example, and each society is even somewhat prejudiced against the dress of their neighbours.

With the use of pictures ruled out as a satisfactory method of obtaining stories which could be scored, LeVine turns to dreams and essays, both of which are written by the schoolboy representatives of the three ethnic groups of Nigerians under study.

If the author's hypothesis is correct, differences in the incidence of *n* Achievement should correspond to the differences in the traditional status mobility among the three groups under study. Specifically, the Ibo youths should score the highest, the Yoruba next, and the Hausa should score the lowest in *n* Achievement. As the author states, "On the assumption of psychocultural lag—that is, a lapse of several generations between the onset of alterations in the status mobility system and consequent alterations in the frequencies of personality characteristics—and in the knowledge that social change for the Nigerian masses has been gradual rather than sharply discontinuous we decided to use youths drawn from the three ethnic groups as the subjects of the study. Since the interior of Nigeria came under British control between 1890 and 1920, a young person in 1961-62 would almost certainly have four grandparents who were raised under traditional conditions—people from Lagos (a British colony since 1861) being the only exceptions—and many would have parents who were adults before the Western impact was felt. According to our theory, such individuals should manifest personality characteristics not substantially different from those of their forefathers."

The schoolboys that were chosen came from male secondary schools located in each of the three areas, and were representative of the three ethnic groups. In each of the schools instruction was carried out in the English language, thereby making it possible for the students to write their dreams and essays in English, and thereby pro-

viding a common base for scoring.

Altogether 342 male secondary school students were tested and their responses analyzed. They ranged in age from fifteen through twenty-eight, with a mean age of nineteen. While the upper limit of these ages may appear high by our Western standards, the difficulties of gaining an education in Nigeria quite naturally raise the age level at which students attend school.

The dreams were collected from the students in the classrooms. The student was given two sheets of paper and asked to spend half an hour writing in English a description of the most recent night-time dream he had had, and the next half hour writing a description of a dream he remembered having had more than once.

Some of the reports indicate that the distinction between night dreaming and day dreaming was not always clear, but from the standpoint of the imagery or fantasy involved perhaps this is not too important. The student reports were then typed, all traces of ethnic identification (such as names) were removed, and they were turned over to the scorers. The scoring was thus "blind".

In the essay part of the testing, the same schoolboys were asked to write essays on success. One essay was in response to the question "What is a successful man?", another essay followed immediately on "How does a boy become a successful man?". For each essay the boys were given half an hour. Again their responses were typed and masked to avoid identification by the scorers. The scorers scored for values involving achievement and obedience—social—compliance, in accordance with a carefully designed content analysis scheme.

After scoring both the dreams and the essays for *n* Achievement motives, were there group differences in achievement responses among the Ibo, Yoruba, and Hausa consistent with those predicted by the status mobility hypothesis? The answer is yes for the dream reports, but no for the essays.

The author has a logical explanation for these findings and we quote him.

> Our explanation of this is that persons high in *n* Achievement are so preoccupied with it that they supply achievement themes and images to completely blank and ambiguous stimuli, like a request for recall of dreams or an open-ended question about the future; persons low on *n* Achievement are more likely to think of things unrelated to achievement when the stimulus is ambiguous, since

they have no internal pressures operating to make them provide achievement themes. But when the stimulus itself provides external pressure in the direction of achievement response— by use of terms like 'success'—then individuals low in n Achievement respond just as vigorously with the language of achievement, thus obliterating differences due to motivational level and substituting verbal differences of another order. Thus the value data on achievement in the previous chapter not only fused mention of hard work with mention of striving for excellence but also, by focusing the subject's attention on the notion of a 'successful man', suppressed the difference between the individual who responds to internal cues concerning achievement and the one who responds only to external cues such as this task gave him. When the external achievement cues are not present, as in the dream reports and the public opinion survey, the predicted and more interpretable response pattern asserts itself.

In addition to the author's comments we might add one based on personal experiences obtained by working with similar Nigerian students. We found them most anxious to please. We also found them quite ready to repeat, sometimes verbatim, admonitions given to them by people in authority. Consequently if they wanted to please an English instructor they would readily repeat words and ideas that had been given to them by the same or another English instructor. This did not necessarily mean that they really believed or even understood what they were saying, rather it was their interpretation of the 'proper' thing to do. Accordingly when asked to write about success in English and for a European, one might expect that they would readily repeat all the truisms about success that they had obtained from this Western oriented teacher, without any regard for their own cultural differences.

The most significant empirical finding in this study by LeVine is that the frequency of achievement imagery in dream reports was greatest for the Ibo, and least for the Hausa. The Yoruba scored between these two. This finding agrees completely with the hypothesized prediction and is in accordance with the traditional status mobility systems of the various group cultures. As for the validity of this finding we can find no basis for criticism. From all reports the study was conducted with a high degree of thoroughness and with the greatest attention to the scientific method. The author points out that since the study did not include data on parental values and child-rearing practices as such, we can only assume that the basic contention by

McClelland regarding the importance of the mothers in implanting higher achievement motives is correct.

Again, and from our observations of the three ethnic groups over a two-year period while we lived in Nigeria, we can only agree that the Ibos are the most industrious, and in general possess the qualities of the Western style entrepreneur to a considerably greater extent than do the Hausa. We also found them to be more imaginative and re-sourceful when faced with a business problem. As might be expected, they were also more independent in their actions and less willing to 'follow the leader'.

Aside from the validity of the findings, what about their useful-ness? What implications do they have for the future development of Nigeria ? We arrived in Nigeria in 1962 just in time to join in the celebrations for the second anniversary of the founding of the republic. There was great talk of nationalism—of one Nigeria for all Nigerians —regardless of tribal differences. We entered with enthusiasm on the task of building one university in Lagos, the federal capital, that would serve all Nigerians. We opened the university with students from the Eastern region (Ibos), the Western region (Yorubas) and a few from the North (Hausas). The obvious reason for the fewer students from the North was that there were fewer applicants who could qualify on the basis of their education. Parenthetically, we might add however, that the single student receiving the top socialistic honours at the end of both the first and second years was a Northerner. Our task, and one of the objectives of starting the new university in Lagos was to bring these diverse cultures together as students so that in the future as political and business leaders they would work together for a united Nigeria.

In some ways we are content that we did not have a book, such as the one under discussion, available to us at the time we started the University of Lagos. It might have encouraged us to give more atten-tion to the Ibos. As it was, we worked hard to be impartial, and kept all discussion of tribal differences out of the university setting. At the end of two years we thought we were making progress, the boys seemed to accept their classmates and were developing a mutual res-pect for each other.

While we were apparently making some progress in developing

tolerance with a handful of college students, however, a group of young Ibo military officers were getting increasingly restless at being dominated by the North. And a group of old guard politicians in the North were making loud noises about the number of Ibos who held government positions in the North. And a member of the Yorubas in the West, including one of our new faculty members, were stirring up old hatreds and pouring salt in wounds that were not quite healed. The result is history.

Today the Ibos have been driven out of the North and the West after a massacre that killed thousands. The Yorubas have mostly gone along with the North although some are still trying to play the intermediate game. The Ibos in the East have in effect seceded from the rest of the country, and the federal government, now largely Hausa and Yoruba, are trying to quell the East by force. The future of Nigeria looks very sad indeed.

Using the word motivation in its broader sense, how can the various groups be motivated to forget their individual differences and to work together to build a country where all can prosper?

How can we make the best use of the strong achievement motivation of the Ibos along with the loyal conservatism of the Hausas? We can only hope that future psychological studies will give us a greater insight into the development of those personality factors that will lead to the greatest good for the greatest number.

Achievement Motivation of Indian Boys

Mostly, achievement motivation researches have been done on adults. *Achievement Motive in High School Boys* is the first serious and thorough study done on students in any part of the world.

The book reports two studies, one on the achievement motive in high school boys, and the second on an experiment in motivation training. The first study was conducted in February-March 1965 in Delhi. A survey was done in 32 higher secondary schools of Delhi for ninth-class boys with a total number of 975 pupils. The study was done with a projective technique developed for this purpose on the lines of TAT. The test was found to be reliable (reliability co-efficients ranged from .39 to .73). The author developed another paper-and-pencil

test, Achievement Motivation Inventory (AMI) with reliability co-efficient of .67. The results reported in the book show that the level of achievement motivation in Delhi school boys compare well with those reported from Germany and USA, although it is lower than those reported in Brazil and Japan. No rural-urban differences were found, nor any differences were found according to socio-economic status. However, boys of fathers with high education showed the highest level of achievement motivation, as also boys from the semi-professional groups. With education controlled, the working class boys showed a higher level of achievement motivation than those from the lower middle class, white colour working group. Achievement motivation showed positive correlation with the total performance at the school annual examination. Motivation to avoid failure showed negative correlation with achievement motivation and self-expected vocational success.

The second study was conducted in Jaipur, Rajasthan, during 1965 and 1966. It involved five experimental and two control schools. Boys in one experimental school were given a brief course in achievement motivation by their teachers who had been trained for this. Boys in two experimental schools were given achievement boosting training programme, and boys in two other experimental schools were given both types of training. Results showed that boys who received both kinds of training showed greater change in their achievement motivation, and that achievement boosting programme alone did not produce necessary change in them. Those boys whose fathers were in the low socio-economic status showed greater change in achievement motivation. However, the effect of social class was not significant. The various instruments developed for this purpose are given in the appendix.

The book makes a significant contribution in reporting results of researches from Indian high school boys, and is an example of a thoroughly conducted research.

Developing Achievement Motivation

Motivating Economic Achievement is a departure from traditional psychological researches in many ways. Psychologists have been mainly concerned with the study of the nature of motivation, and psycholo-

gical and social correlates of motivation. Some attempts have been made by experimental social psychologists to manipulate the several variables in order to see how changes in a small group occur. McClelland, however, has taken a bold step in doing research in an open community, with all the obviously known limitations. The authors of the book deserve compliments for this courage.

The book reports research done in Kakinada, a medium-sized town in Andhra Pradesh. Data from another town, Vellore in Tamil Nadu, have also been included in the report. The research was undertaken during 1964 and 1967. Based on McClelland's theory of achievement motivation, it was hypothesized that the presence of a small and strong group of persons with high achievement motivation in a community would generate changes in the entire community. The study was based on two-level hypotheses: firstly, that achievement motivation can be developed in groups of adults, and secondly, that a nucleus of a group of people with high need for achievement in a community would disseminate achievement motivation and produce necessary changes resulting in economic development of the community. The research on these two hypotheses is rather ambitious; the authors have been able to prove the first hypothesis. As far as the second hypothesis is concerned, the present study does not give enough evidence to prove or disprove it. The authors contend that the second hypothesis has also been partly proved.

The study reports the results of an experiment in achievement motivation training in which 78 business men from Kakinada and Vellore were involved. They underwent an intensive psychological training for a period of ten days in groups of 10-14. These persons were studied in their own places of work. There were control groups, consisting of 22 individuals from Kakinada, not involved in training, and 35 from Rajahmundri (a controlled town) and 16 from Vellore. Age, mean years of education, occupation, median values of annual gross income, and personal capital were used for matching.

The training course was based on 12 basic inputs, clustered in four groups: achievement syndrome, self-study, goal setting, and interpersonal support. Chapter two of the book describes the rationale of the training and is a brilliant contribution to the technology of behaviour modification in natural groups.

Analysis of several measures of individual behaviour and econo-
mic effects demonstrated that the participants who underwent achieve-
ment motivation training showed significant improvement in many res-
pects of entrepreneural performance, as revealed by the comparison
of before and after data from these individuals, and comparison with
three matched control groups. These persons showed more active
business behaviour worked for longer hours, started new business ven-
tures, made more specific investments in new, fixed, productive capi-
tals, employed more workers and tended to have relatively larger per-
centage increases in the gross income of their firms. The authors
show that as a result of the training, there was mobilization of appro-
ximately Rs. 3,760,000 of specific new capital investments and about
135 new jobs. The research showed that persons who were incharge
of their business, those who were dissatisfied with their perform-
ance, but were interested in solving specific problems gained more
from the training. According to the authors, the courses converted
latent personal resources of the individuals' into productive economic
activity. This was by strengthening the sense of efficacy amongst those
who wanted it. The authors admit that achievement motivation alone
was not sufficient to increase entrepreneural activity, and so the train-
ing had inputs from other sources also. According to the authors,
achievement motivation courses did not increase or alter the ego ideal
so much as they strengthened the ego, the adaptive mechanism by
which the person achieves the goal.

The book describes in detail the setting of the experiment, chrono-
logical steps taken in preparing the training programme, the difficulties
in running the experiment in a rigorous way, and the results of the
research. The book gives four case studies of persons undergoing
change. In appendix, the scoring manual for sense of efficacy is
given.

The book departs from the usual style of reporting research find-
ings. It gives a feeling of living conversation, and sharing of new
experience with the readers. Wherever the authors thought that this
communication can be facilitated by photographs, anecdotes, descrip-
tion of statistics, etc., they have used these freely. In this sense, the
book innovates in research reporting.

Probably, the greatest contribution of the book is to go a step

forward and demonstrate that motivation can be changed through appropriate methods. In this sense, the book has made a real contribution. However, there are several lacunae from the point of view of rigorous standards of research. Some of these were part of the research design, and some were caused by the constraints of the situation. This is for the first time that a training programme in achievement motivation was developed, and it was developed in India. A more thoroughly conducted research on the premises of this book may be needed in future.

UDAI PAREEK
V. KOTHANDAPANI
SUE T. CRAWFORD
HANS E. KRUSA

Udai Pareek, the first author, is the Director, School of Social Sciences, Udaipur University, Udaipur.

Educational Testing

Though the problems confronting educationists in the area of educational testing in different parts of the world are similar, no consolidated information was, however, available till the publication of this book on how experts in different countries have attempted to approach and solve them. The pressing realization of this need led the Pedagogisches Zetrum in Berlin to organise the First International Conference on Educational Testing from 16 to 25 May 1967, at which 27 countries were represented.

The conference was attended by such people of eminence as Chauncey, Dunn, Ebel, French, Henrison Lindquist and others, that the list of its participants is easily a directory of experts from different parts of the world, who have made outstanding contributions in the field of testing. These scholars exchanged experience by contributing papers and holding discussions in the course of the conference.

Content Overview

In all, seventy-nine papers were sent in. Thirty-eight of these form the contents of the first volume which has been very ably edited by Karlheinz Ingenkamp. The papers have been classified into six divisions on the basis of the nature of their content. The bunch of papers of each division has been put in a separate section. The titles of the sections of the book are:

1. Testing Throughout the World.
2. Educational Objectives of Testing.
3. Varying Types of Tests for the Assessment of Scholastic Achievement.
4. Recent Types of Tests for the Assessment of Abilities.
5. Recent Tests for the Assessment of Social Behaviour,

Interests and Attitudes: The Results and Significance of Culture-Fair Tests.

6. Method of Test Construction and Test Analysis. Recent Developments in Machine Scoring and Processing.

As it is neither possible nor desirable to present a consolidated review of a compilation with such varied themes it appears appropriate to indicate the highlights of the six sections of the book to give an overview.

The first section of the book consists of twenty papers on the present and proposed testing programmes of almost the same number of countries by their respective representatives. Each paper has its own central theme and the scatter of the problem raised by them is very large. Though teacher-made tests are not completely ignored a discussion on standardized tests constitutes a major part of the papers. The papers outline the testing programmes in the respective countries and refer to the structure of education and administrative machinery as they describe the functions of tests, the principal kinds of tests, the extent of the use of standardized tests, the levels or grades at which tests are administered, etc. Several of these papers close with detailed information about tests and test publishers in the countries concerned.

The second section deals with Educational Objectives of Testing. The papers strike at one of the most important and fundamental prerequisites of testing, the objectives, and view them from different angles. While the already established taxonomies of educational objectives in the cognitive and affective domains are recapitulated, a new one in the psychomotor domain is proposed. The objectives of testing (expectations), of different categories of people from a testing programme are also discussed. A discussion of educational potentialities and dangers in the use of tests also forms a part of this section. A paper on the development of objectives, if included, could have filled in a gap that exists.

Papers of the third section concern themselves with various unconventional item-types for the testing of scholastic achievement and the construction of objective-based tests items and test batteries. The papers help to provide an insight into the problems of test construction for meeting the challenges of the new developments in the content of teaching and teaching methodology as they are related to the

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field of testing.

The fourth section deals with the measurement of creative thinking abilities which are often qualified as divergent, productive or inventive. Some recently developed batteries in this area form part of this section along with the context effects in the assessment of these abilities. A study to validate Thurstone's concept of 'closure' is also included in the section. This study, whose details can be referred to in the book, comes to the conclusion that though 'closure' does exist in the cognative domain, it cannot be confirmed to be the same function as the perceptual closure studied by Thurstone.

Section Five of the book consists of papers on the assessment of the various non-scholastic aspects of the growth of students' personality. They cover social behaviour, interests and attitude. Their potential for educational theory and practices, which form the subject matter of the papers, are likely to be of great use in view of the recent developments in these areas and the newly bestowed responsibilities on modern education.

Methods of test construction and test analysis form the subject matter of the sixth section. The papers of the section deal with the steps for devising a new test, machine scoring of tests, statistical analysis, and interpretation of the results.

Critical Estimate

The main merit of the book lies in the fact that it presents the latest views of the experts on various technical issues in the field of testing, and gives up-to-date information about the latest developments and the testing programmes prevalent in different countries of the world. Yet another treasured content of the book are the recent investigations in the field of testing. Several of the studies described in it can be replicated for the validation of results and will make available inferences regarding the degree of their application in other countries and cultures.

The book being a compilation of papers presented at a conference could not have been published better. But its value could have been greatly increased, if, as a part of planning the conference, a committee of experts had developed an expected list of discussions, in advance,

to cover the various areas of testing in a comprehensive and a connected manner. Thus, several gaps that now exist could have been filled in by requesting the experts who might have worked in the respective fields, to contribute papers on them.

The title of the book raises some expectations which its contents fall short of satisfying. These are particularly related to its deficiency of details regarding the systems of school evaluation in vogue in different countries. Secondly, the book mainly concentrates on standardized tests. This seems to be an injustice to teacher-made tests, which are by no means less important. Thirdly, the latest information about the form and content of examinations conducted by the public examining agencies in various countries is another aspect that the reader eagarly looks for in the book without much success. It cannot be doubted that in future such conferences will be held and it is hoped that they will look after the aforesaid aspects.

Above all, the price of the book (£6. 10s.) easily takes it out of the reach of a large number of educators and workers in the field of testing who would have liked not only to read it but also own it. This is likely to put a serious limitation to the extent of its use. The publication of a cheaper edition of the book therefore seems to be a possibility worth exploring.

It may be said in the end that with the coming in of the second volume of this book, a comprehensive treatise in the field of educational testing would come into being and it is hoped that these two volumes would give a better understanding of the various kinds of activities going on in different countries and ultimately lead to a qualitative improvement in educational testing all over the world.

H. S. SRIVASTAVA

H. S. Srivastava is Reader in the Department of Textbooks, National Institute of Education, New Delhi.

Education for Employment and Development

Planning Occupational Education and
Training for Development
Eugene Staley. Orient Longmans, New Delhi, 1970.

There is now a growing amount of literature on education as an 'investment'. Many economists have written on the place of education in economic development indicating that the contribution of education to economic growth is not insignificant. Some of these studies have attempted to quantify the contribution of education in certain countries. If education has so much bearing on national development, its 'products' would have to fit the priority needs of economic growth. This suggests that education should be geared to the requirements of the economy. At the same time, education is a consumer goods. There is an inherent 'cultural' and 'economic' conflict in educational thought, because there is generally a shortage of education and, therefore, the provision of any education is welcomed. But, as John Vaizey has put it, 'more' education of a sterile 'cultural' kind seems to be not only uneconomic but unwholesome. If this view is accepted, then education should be made more useful for carrying out various economic activities efficiently.

The fact that the present-day education, as imparted, is not sufficient for ocupational preparation in all cases has been widely recognized. As a result of this recognition, many countries have embarked upon specific programmes of education and training to shape the employable persons to the occupational requirements. Most of these programmes, however, are concentrated in the industrial field. Thus, the United Kingdom has introduced important innovations under its Industrial Training Act of 1964 which have influenced its education and training for industry. In the United States, a number of agencies are engaged in research as well as in encouraging research on the occupational suitability of education and the integration of 'academic' and

'vocational' aspects of education. In some Latin American countries, a special organization has been created with a view to promoting occupational training. All these measures are indicative of the growing concern that education should be made more purposive and useful to suit the modern fast-changing economy. How education can be made more useful from the point of view of the employment, is broadly the subject-matter of the present study.

The main objective of this study in the words of Paul H. Hanns, Director of the Stanford International Development Education Centre (SIDEC), who has written a foreword, is to throw light on a set of problems that is central to education's role in modernization and development. While Staley's study is concerned with Occupational Education and Training (OET), it is understood that studies on (a) Education and the Formation of Social and Civic Attitudes, and (b) Education and the Rural-Urban Transformation under the present series are also in preparation. The discussion in the book, which contains five chapters, proceeds in a systematic manner. The author starts from a broad conceptual framework and a general planning model of OET. Chapter Two gives an analysis of manpower needs. In Chapter Three, the content of education for occupational preparation is discussed. Then the question of institutional choices available to policy-makers is examined in Chapter Four. Finally, Chapter Five gives an idea of the organizational mechanism that may be necessary for planning coordination and financing of OET programmes.

At the outset, the author points out that the problems relating to OET can be studied in four phases, viz., general education; general plus preoccupational education; job-entry training plus further education; and career-long further training and retraining with further education. The discussion under each of these four phases of OET, though brief, tends to be interesting. The author goes on to analyse the manpower requirements of a developing country. He rightly emphasizes both quantitative and qualitative aspects of manpower requirements. In manpower planning, generally speaking, sufficient emphasis is not laid on the quality aspect and only a quantitative matching of demand and supply of a particular category of personnel is attempted. Even in respect of manpower estimates, there are still many differences of opinion on the techniques of making such estimates.

Further, the estimation of manpower requirements is fraught with certain limitations, particularly in developing countries where suitable technical coefficients are not available due to paucity of relevant statistical series.

The author has emphasized the need for various types of qualified personnel in the context of an agricultural-rural transformation in developing countries. However this aspect has not received adequate attention from manpower planners as they have, by and large, confined themselves to the needs of the modern urban sector. Manpower planning, if it has to be effective in developing countries where agriculture is predominant, has to concern itself with this problem on an urgent basis. At the same time, the author's assertion in regard to the employment potential of the agricultural sector in developing countries may or may not be true. The author says that: "If, in these (i.e., developing countries) the employment problem is to be met at all during the years immediately ahead, it will have to be met largely in the agricultural and service sectors." (p. 25.) It is true that agriculture should be developed. But even with this development in agriculture, there will still be surplus population on the land in large developing countries such as India. It is, therefore, difficult to see how agriculture can solve the growing problem of unemployment. On the other hand, as economic development proceeds, the employment in agriculture as a proportion to the total working force begins to decline. At least this has been the experience in countries like the United States, the United Kingdom, Japan, etc.

At one stage in the discussion on a curriculum design for OET, the author says that "for a long time to come, people in newly developing countries are unlikely to be in danger of having 'too much' general education". But in a developing country like India, the picture is just the opposite, where general education is overwhelmingly important at all stages. Excessive general education, particularly at the post-secondary stage, has at best shaped the Indian youth for 'white collar' jobs only. The shortage of such job opportunities has resulted into sizeable educated unemployment and caused much frustration and disappointment to the young employment seekers.

The main utility of this small book lies in the fact that probably for the first time an attempt is made to offer a broad conceptional

framework under which various problems concerning OET can be discussed. This, however, is tentative as the author himself has pointed out. It is hoped that it will provoke further discussion on the subject which is of considerable importance to developing countries.

G. C. BERI

G. C. Beri is Senior Economist, National Council of Applied Economic Research, New Delhi.

Educational Progress
in
Rural Maharashtra

Progress of Education in Rural
Maharashtra (Post-Independence Period)

A.R. Kamat, Gokhale Institute of Politics and Economics,
Asia Publishing House, New Delhi, 1968.

The research publication under review gives the progress of edu-
cation in rural Maharashtra during the post-Independence period. The
basic data used in the study is derived mainly from two sources, name-
ly, (i) the surveys and the resurveys conducted in 1955-63 in 69 vill-
ages, selected from 14 out of 25 rural districts of the state; and (ii)
decennial population census reports of 1951 and 1961. The survey
data collected in 1964 about primary schools in villages and about their
development since 1947 has also been used. In other words, the study
is spread over a period of a decade and a half, beginning in 1951.
Although data used in the study for the villages were extracted from
punched cards which were prepared for the original purpose of the
surveys and resurveys of the villages, the principal merit of the data
available in the surveys was that it made possible for author and his
team to relate literacy patterns with several important aspects such as,
for instance, size of land holdings, caste, occupations, etc.

The findings of the investigation are analysed in ten chapters.
The book also has three appendices (one annexed to Chapter I), 19
detailed statistical Tables, and a five-page subject index at the end.
A brief summary of the main chapters along with the major findings
is given below.

Chapter 2 gives a detailed account of the historical development
of primary education in Maharashtra from 1818 to 1964. However,
the historical account given here relates only to the Western Maharash-
tra region (Desh and Kankan) of the present State. The study reveals

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that even before the British took over in 1818, there was a fairly well
functioning system of indigenous schools which imparted religious
education and elementary education in the 3 R's. But it is mention-
ed that school education was confined only to *boys*, and that scheduled
caste boys ('untouchables') were not admitted to the schools. Imme-
diately after the British Raj, now schools with a modern content of
education were established. As a result the indigenous system collaps-
ed by 1936-37. Only a few schools could survive from the indigenous
stream. In terms of statistics, the number of modern schools rose
from 322 in 1955-56 to 33,000 in 1954-55, and the number of children
in these schools rose from 23,000 to 3.8 million during this period.
The participation rate of girls in primary education rose from 16 per
cent to about 30 per cent during this period. After the reorganisation
of the States, the Vidarbha and Maratha regions were merged with the
former Bombay State. By 1963-64, the enrolment in primary school
stood at about 5 million.

Chapter 3 gives the progress of literacy during 1901-1951. It is
interesting to find that the growth in the literacy rate of Bombay pro-
vince moved from 7 per cent to 25 per cent during these 50 years
against the slow growth of 5 per cent to 16 per cent for the country
as a whole. Incidentally, the study is silent about the changes in the
concept of literacy as used in different censuses but tries hard to be-
lieve that village survey data is more reliable than the census because
the surveys were conducted under the able guidance of the Institute.
But one does not know the extent of the sampling error in the estimates
because of the small size of the sample. We also note that the liter-
acy rate during decade 1951-61 for the State as a whole increased from
21 per cent in 1951 to 30 per cent in 1961 as against 24 per cent for
all India in the same year. The study reveals that the traditional re-
lative positions of different caste groups in the rural areas still con-
tinue in respect of literacy and education. However, it is gratifying
to note that a great change has come in recent years because of the
very rapid growth of education. Now, Brahamins and advanced castes
are not the only literate or educated communities in village society.

Chapter 5 gives the literacy pattern by occupation and size of
holding. It reveals that literacy rates of different occupational groups
were in the following order: Skilled services such as health and teach-

ing, trade and commerce, artisans, cultivators and labourers. Among cultivators and labourers, the study finds a poor prospect for labourers to become literates because the number of educands has actually declined during the survey and resurvey periods. The cultivator group is pushing ahead even in higher education. The study also notes:

> So in the agricultural population it is the cultivator class which is generally leading the advance in literacy and education. And among the cultivators it is the more affluent section which is making further progress in education. (p. 58)

Chapters 7 and 8 survey the position of compulsory primary education in general, and in the surveyed villages in particular, and Chapter 9 gives the findings of a case study of the Gulumb area.

In brief, the study records significant growth in education in the rural areas of the State and points out that the education is making inroads among the socially disadvantaged social groups. However, the bigger villages have gained at a higher speed than the smaller villages where education is of recent origin. The Brahamins and other advanced Hindus continue to take a major share of the educational provision and of social influence and social prestige in the village community. The progress of the scheduled castes and scheduled tribes is slow.

The study has also shown that the calibre of the teaching personnel is an important element in the progress of education in a village, and the attitudes of local leadership towards education play an extremely important part in educational development of the village.

Finally, the study as usual has recommended for investigation on a larger scale for a more thorough study of the problem. It may perhaps be wise on the part of NCERT to include within the purview of the Third Educational Survey the study of the problem of progress of education in rural areas on lines similar to those of the present investigation. It might be useful to collect information at the household level for this purpose.

In the end, we may compliment A.R. Kamat for presenting this

useful investigation to the nation and policy makers. The findings are an eye-opener because one discovers that the existing educational facilities allocated in rural areas are more in favour of the vocal groups, such as the high-caste population, the big landlords, and generally those at a socially advantaged position in rural societies.

H. N. PANDIT

H. N. Pandit is Reader in the Department of Educational Psychology and Foundations of Education, National Institute of Education, New Delhi.

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